# 符 号 说 明

1. 凡数据后有符号“*”，表示光栏位置或其值同有光栏。

凡数据后有符号“**”，表示原资料中未给出 F. A. 值，此系编者在计算时给定的值。

2. 凡没有注明数值单位的，均以毫米为单位；若注明以英寸为单位的，则在该镜头资料中均以英寸为单位。

3. 常用符号：

$\Sigma S_1$ 球差系数和；

$\Sigma S_2$ 彗差系数和；

$\Sigma S_3$ 象散系数和；

$\Sigma S_4$ 场曲系数和；

$\Sigma S_5$ 畸变系数和；

$LA'$ 球差；

$\Delta H'$ 绝对畸变；

$x_t'$ 细光束子午场曲；

$x_s'$ 细光束弧矢场曲；

$x_t'-x_s'$ 象散；

$K_{T1}'$ 全口径的子午彗差；

$K_{T0.7}'$ 0.707 口径的子午彗差；

QP 相对畸变；

HI 理想象高；

E. F. L 焦距；

B. F. L 后截距；

FNo. 相对孔径倒数；

F. A. 视场角；

$L_p'$ 入瞳距离或光栏距 $L_p'$ 下标所示面的距离；

$\eta$ 物高；

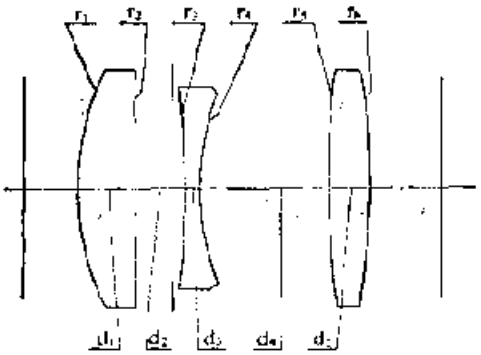
$\omega$ 镜头视场。

VISIT…

编号：05-04-001

# 重 显 透 镜 系 统

E. F. L＝100　　B. F. L＝79.61　　FNo. ＝5.6　　F. A. ＝±22.5°



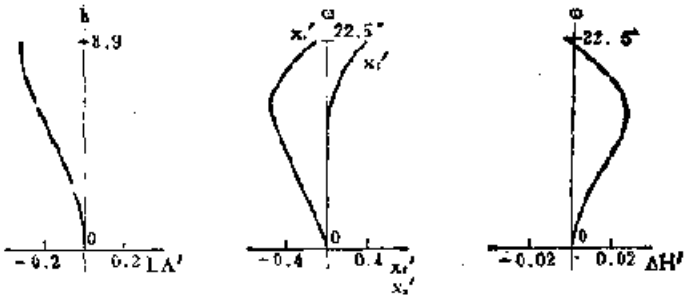
| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 25.11 | 5.14 | 1.65844 | 50.8 | 4 | 24.54 | 11.74 | | |
| 2 | 2844.42 | 4.75* | | | 5 | 142.77 | 3.88 | 1.65844 | 50.8 |
| 3 | −79.796 | 1.36 | 1.6668033.1 | | 6 | −64.56 | | | |

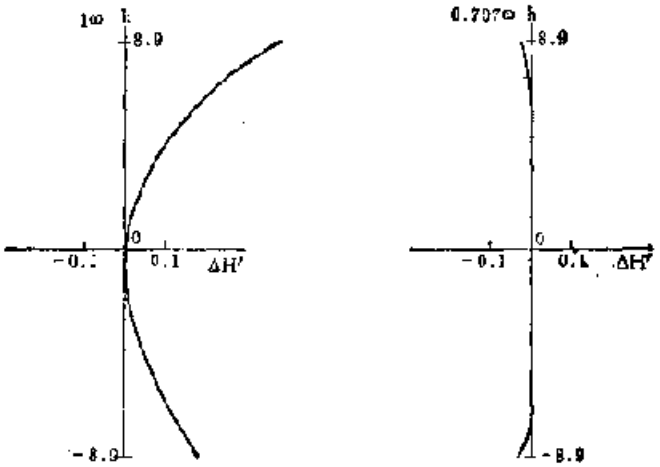
4.75* = 3.75 + 1.00

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | III | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.01010 | −0.00667 | 0.00896 | −0.03791 | 0.01885 | 41.27 | −0.01% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.320 | −0.0041 | 0.398 | −0.073 | 0.471 | 0.2790 | 0.1504 |
| 70 | −0.248 | 0.0257 | 0.021 | −0.570 | 0.591 | −0.0229 | 0.0059 |

注：1. M＝2*～10*，

2. 以上象差值是按 l ＝ −∞计算的。

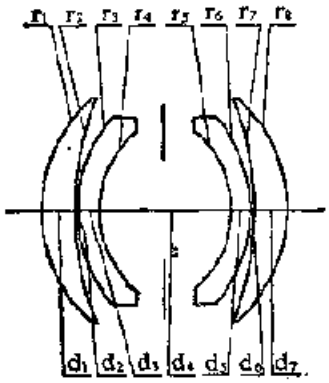


编号：05-04-002

# 对称复制透镜系统

E.F.L=0.99　　B.F.L=0.78　　FNo.=4.5　　F.A.=±25°**

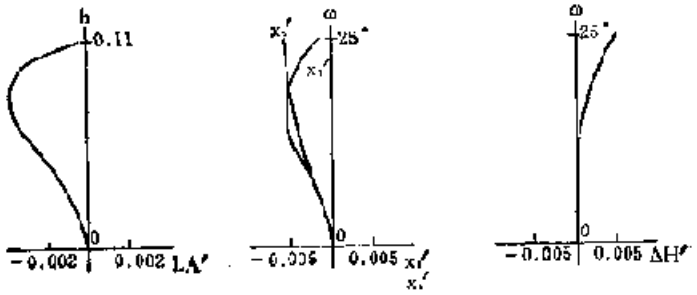


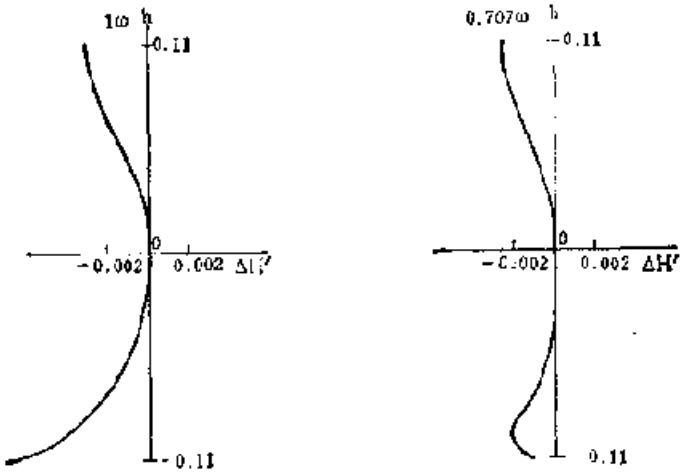

| 序号 | r | d | nd | ν | 序号 | r | d | nd | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.217 | 0.0480 | 1.62 | 60.3 | 5 | −0.147 | 0.0300 | 1.72 | 29.3 |
| 2 | 0.435 | 0.0004 | | | 6 | −0.207 | 0.0004 | | |
| 3 | 0.207 | 0.0300 | 1.72 | 29.3 | 7 | −0.435 | 0.0480 | 1.62 | 60.3 |
| 4 | 0.147 | 0.1900* | | | 8 | −0.217 | | | |

0.1900* = 0.0950 + 0.0950

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00034 | −0.00025 | −0.00004 | −0.00025 | 0.0008 | 0.4585 | 1.03% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_T$ | $K_{T0.7}$ |
| 100 | −0.00039 | 0.00474 | −0.00159 | −0.00606 | 0.00447 | −0.00493 | −0.00224 |
| 70 | −0.00388 | 0.00152 | −0.00524 | −0.00488 | −0.00036 | −0.00365 | −0.00149 |

注：以上象差值是按 $\bar{l} = -\infty$ 计算的。

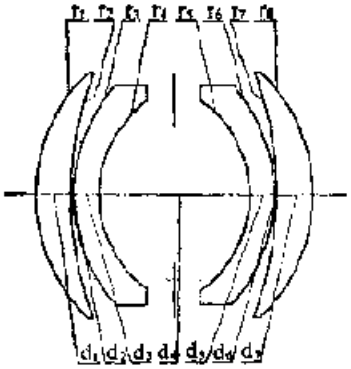


编号：05-04-003

# 对称复制透镜系统

E.F.L=1.02　　B.F.L=0.82　　FNo. −4.5　　F.A. = ±25°**



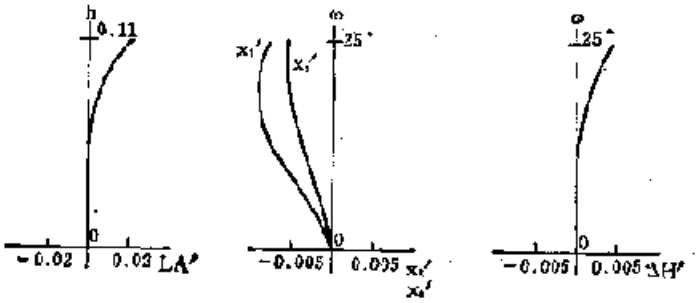
| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.211 | 0.0660 | 1.62 | 60.3 | 5 | −0.143 | 0.0290 | 1.72 | 29.3 |
| 2 | 0.424 | 0.0005 | | | 6 | −0.204 | 0.0005 | | |
| 3 | 0.204 | 0.0290 | 1.72 | 29.3 | 7 | −0.424 | 0.0460 | 1.62 | 60.3 |
| 4 | 0.143 | 0.1860* | | | 8 | 0.211 | | | |

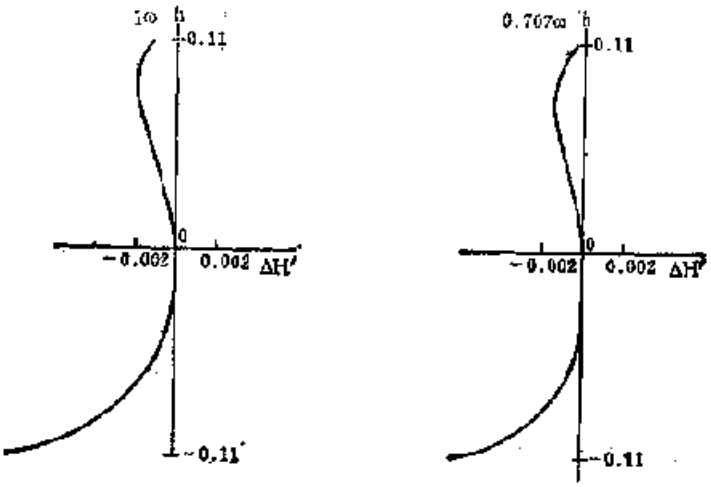
0.1860* − 0.0930 + 0.0930

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1m) |
|---|---|---|---|---|---|---|---|
| | 0.000009 | −0.000219 | −0.000130 | −0.000154 | 0.000736 | 0.4758 | 0.91% |

| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.0215 | 0.0045 | −0.0086 | −0.0056 | −0.0030 | −0.00466 | −0.00206 |
| 70 | 0.0048 | 0.0014 | −0.0090 | −0.0048 | −0.0042 | −0.00335 | −0.00135 |

注，以上象差值是按 I = −∞计算的。

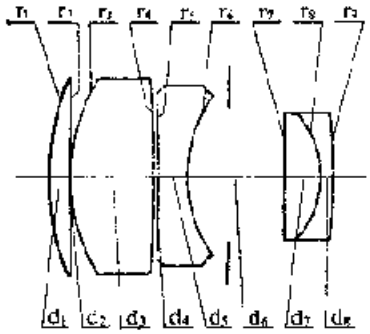


编号：05-04-004

# 摄　影　物　镜

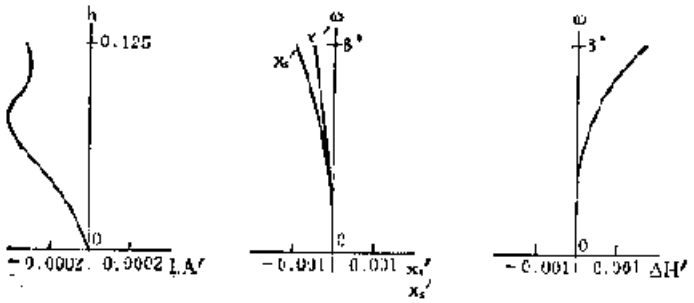
E. F. L＝1.0　　B. F. L＝0.6656　　FNo. ＝4　　F. A. ＝±8°

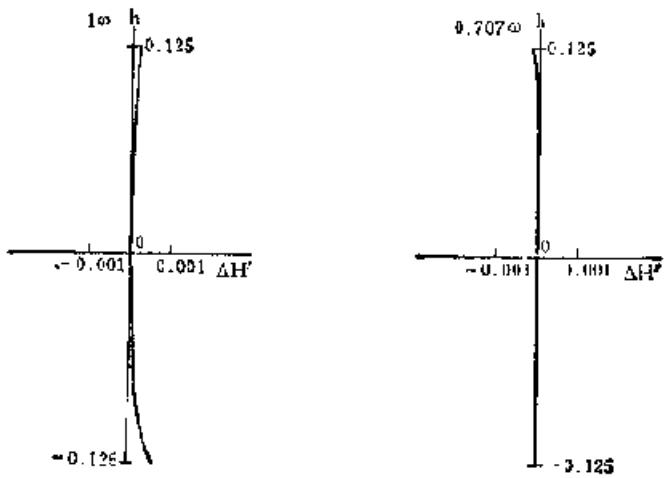



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.37371 | 0.02413 | 1.62041 | 60.29 | 6 | 0.16813 | 0.11845* | | |
| 2 | 2.10155 | 0.00016 | | | 7 | ∞ | 0.04432 | 1.56965 | 49.45 |
| 3 | 0.23750 | 0.10210 | 1.48749 | 70.04 | 8 | −0.11513 | 0.01477 | 1.65232 | 63.49 |
| 4 | −1.32595 | 0.00607 | | | 9 | −1.11563 | | | |
| 5 | −1.16401 | 0.03239 | 1.83446 | 35.88 | | | | | |

0.11845* = 0.04000 + 0.07845

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QF (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000084 | −0.000012 | 0.000037 | −0.000029 | 0.000377 | 0.1399 | 1.13% |
| h 或ω% | T.A′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.00033 | 0.00158 | −0.00052 | −0.00091 | 0.00039 | 0.000410 | 0.000097 |
| 70 | −0.00040 | 0.00055 | −0.00027 | −0.00049 | 0.00022 | −0.000017 | −0.000020 |

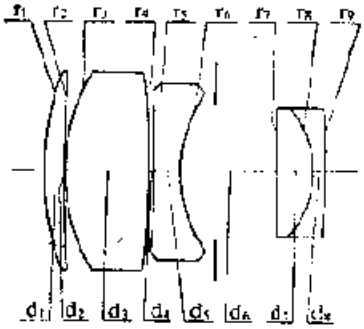


编号：05-04-005

# 摄　影　物　镜

E. F. L＝1.0　　B. F. L＝0.56　　FNo. ＝4　　F. A. ＝±8°

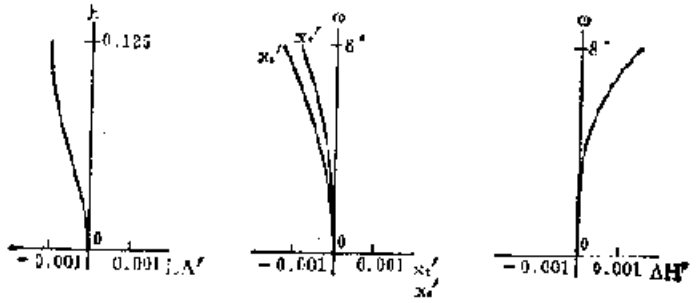


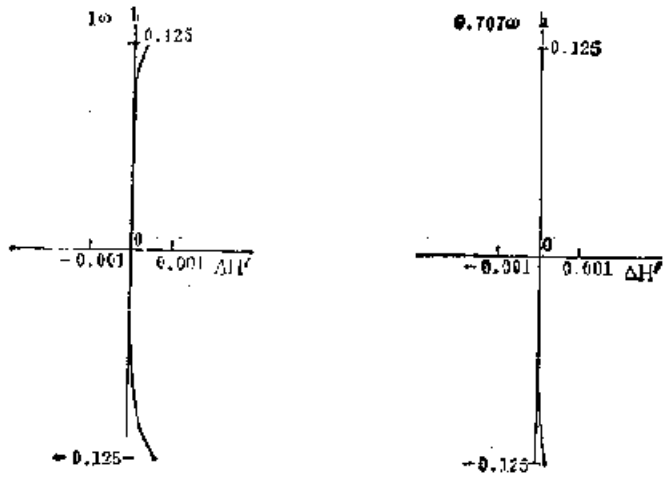
| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.36712 | 0.02405 | 1.62041 | 60.29 | 6 | 0.17245 | 0.11812* | | |
| 2 | 1.92115 | 0.00016 | | | 7 | ∞ | 0.04417 | 1.56965 | 49.45 |
| 3 | 0.24535 | 0.10176 | 1.48794 | 70.04 | 8 | −0.12034 | 0.01472 | 1.55232 | 63.49 |
| 4 | −1.39973 | 0.00605 | | | 9 | −1.04970 | | | |
| 5 | −1.21222 | 0.03337 | 1.66446 | 35.88 | | | | | |

0.11812* = 0.04000 + 0.07812

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP′(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000092 | 0.000002 | 0.000006 | −0.000050 | 0.000357 | 0.1386 | 1.06% |

| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.00107 | 0.00148 | −0.00079 | −0.00125 | 0.00046 | 0.00050 | 0.00017 |
| 70 | 0.00086 | 0.00052 | −0.00043 | −0.00066 | 0.00023 | 0.00011 | 0.00004 |

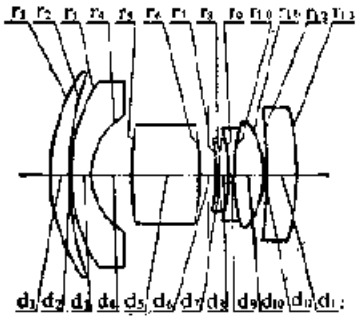


编号：05-04-006

# 摄　影　物　镜

E.F.L＝1.0　　B.F.L＝1.127　　FNo.＝4　　F.A.＝_36°

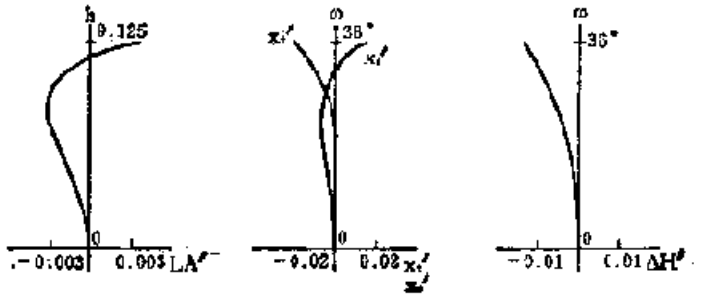


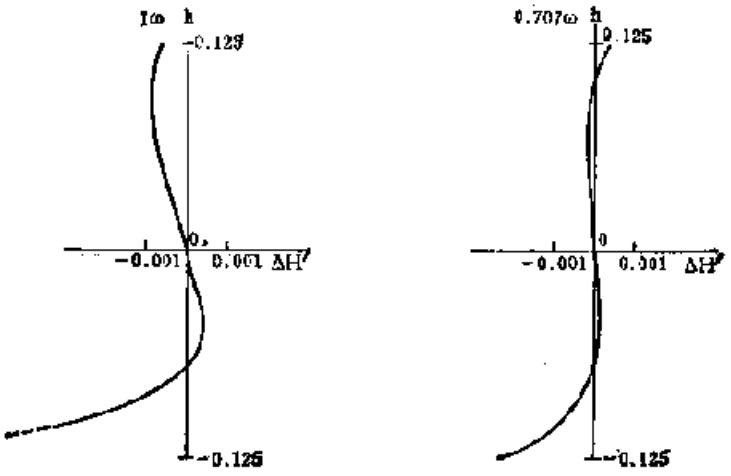
| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.6687 | 0.0534 | 1.66755 | 41.88 | 8 | 1.2328 | 0.0275 | | |
| 2 | 1.1066 | 0.0018 | | | 9 | −0.6883 | 0.0227 | 1.51742 | 52.16 |
| 3 | 0.6268 | 0.0755 | 1.51821 | 65.18 | 10 | 0.7778 | 0.1089 | 1.62041 | 60.29 |
| 4 | 0.2407 | 0.1516 | | | 11 | −0.3499 | 0.0018 | | |
| 5 | 1.1472 | 0.2415 | 1.66672 | 48.38 | 12 | −2.8404 | 0.1178 | 1.62041 | 60.29 |
| 6 | −0.8727 | 0.0604* | | | 13 | −0.9178 | | | |
| 7 | −0.7238 | 0.0187 | 1.72161 | 29.28 | | | | | |

$0.0604^* = 0.0300 + 0.0304$

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000419 | 0.000212 | 0.000145 | −0.001007 | −0.003871 | 0.7283 | −1.88% |

| h 或 m% | LA′ | Δ=′ | $x_t'$ | $x_s'$ | $x_t - x_s'$ | $K'_{T1}$ | $K'_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.00361 | −0.0136 | −0.0202 | 0.0156 | −0.0358 | −0.00399 | −0.00106 |
| 70 | −0.00332 | −0.0064 | −0.0027 | −0.0073 | 0.0046 | −0.00096 | −0.00018 |

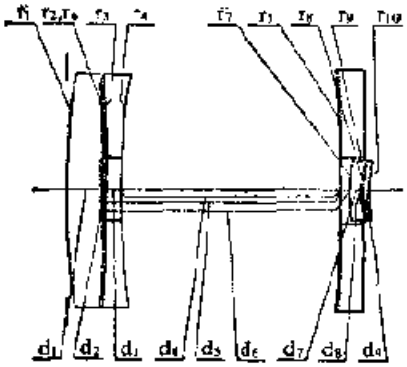


编号：05-04-007

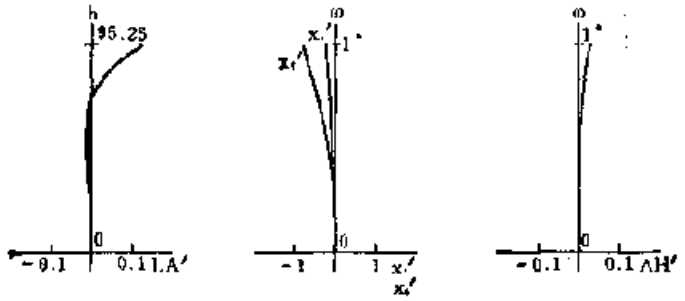
# 卡塞格伦型折反射透镜系统

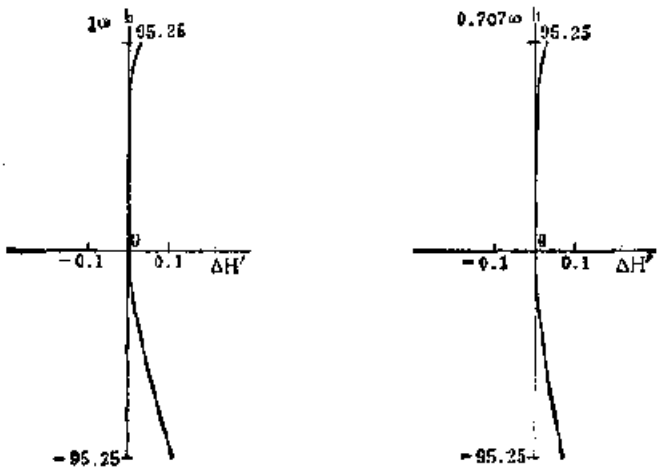
E. F. L＝1516　　B. F. L＝97.16　　FNo. ＝7.96　　F. A. ＝±1°　　$L'_{p_1}$＝0



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 605.59 | 25.90 | 1.5168 | 64.2 | 6 | −1146.29 | 445.46 | | |
| 2 | −1146.29 | 1.00 | | | 7 | 195.96 | 8.20 | 1.5168 | 64.2 |
| 3 | −1018.78 | 11.50 | 1.5168 | 64.2 | 8 | 60.01 | 1.03 | | |
| 4 | 634.29 | 424.27 | | | 9 | 61.51 | 4.57 | 1.5168 | 64.2 |
| 5 | −1438.83 | −435.85 | −1.0000 | | 10 | 151.13 | | | |

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | Hl | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00119 | 0.00289 | −0.00233 | 0.00064 | 0.00326 | 28.46 | 0.097% |
| h或ω% | $L\Lambda'$ | $\Delta H'$ | $x'_t$ | $x'_s$ | $x'_t\ x'_s$ | $K'_{T1}$ | $K'_{T0.7}$ |
| 100 | 0.132 | 0.026 | −0.775 | 0.203 | −0.573 | 0.0084 | 0.0349 |
| 70 | −0.007 | 0.009 | −0.395 | −0.104 | −0.291 | 0.0476 | 0.0243 |

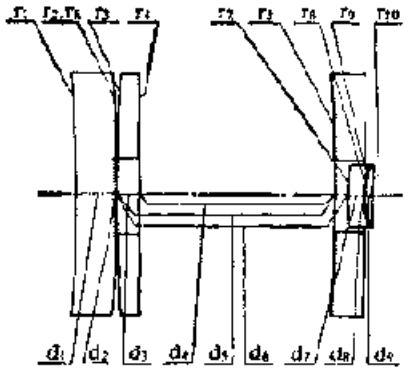


编号：05-04-008

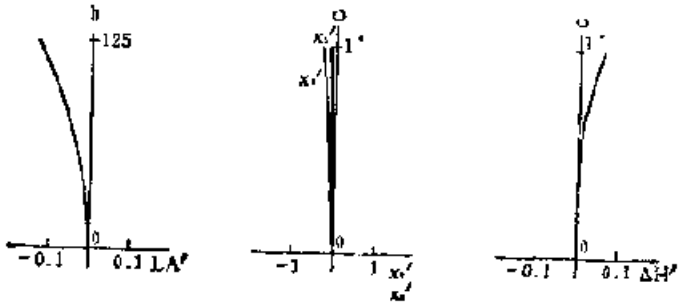
# 卡塞格伦型折反射透镜系统

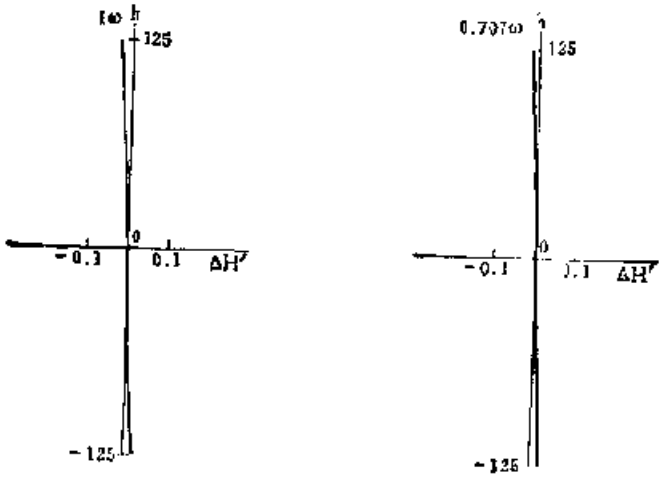
E. F. L＝2095　　B. F. L＝164.8　　FNo. ＝8.38　　F. A. ＝±1°　　$L'_{p_1}$＝－7.39



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | －1062.13 | 31.59 | 1.516864.2 | | 6 | －1550.06 | 616.34 | | |
| 2 | －1550.06 | 0 | | | 7 | 363.76 | 11.45 | 1.516864.2 | |
| 3 | 3567.61 | 10.02 | 1.516864.2 | | 8 | 80.35 | 1.42 | | |
| 4 | ∞ | 587.01 | | | 9 | 81.53 | 3.45 | 1.516864.2 | |
| 5 | －1983.84 | －603.04 | －1.0000 | | 10 | 288.52 | | | |

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | $\Pi$ | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.00099 | －0.00027 | －0.00103 | 0.00013 | 0.00669 | 36.56 | 0.16% |
| h 或ω% | LA′ | ΔH′ | $x_t$ | $x'_s$ | $x_t-x'_s$ | $K\acute{T}_1$ | $K\acute{T}_{0.7}$ |
| 100 | －0.133 | 0.057 | －0.233 | －0.089 | －0.194 | －0.00202 | －0.00063 |
| 70 | －0.068 | 0.020 | －0.171 | －0.054 | －0.117 | －0.00377 | －0.00161 |

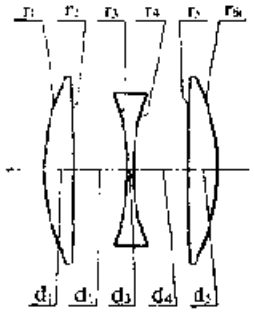


编号：05-04-009

# 对称三组元照相复印装置透镜系统

E. F. L = 1.0　　B. F. L = 0.825　　FNo. = 5.6　　F. A. = ±20°

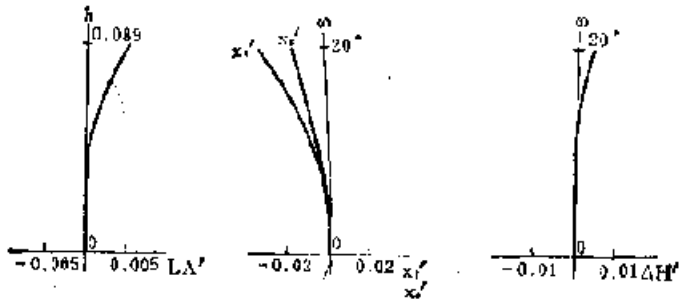


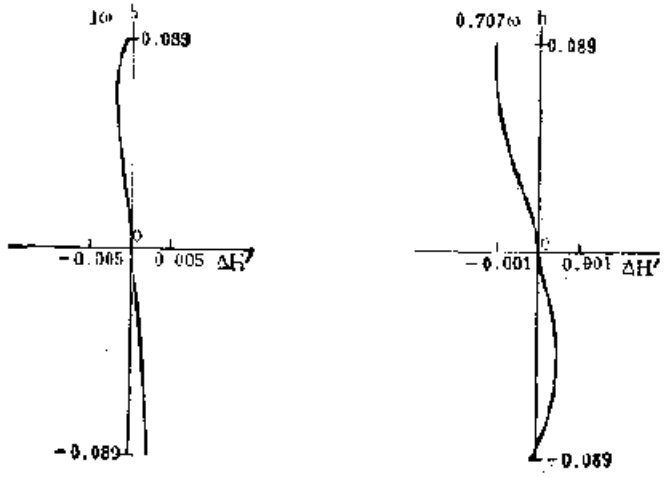
| 序号 | r | d | $n_D$ | ν | 序号 | r | d | $n_D$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.3907 | 0.0542 | 1.620 | 60.3 | 4 | 0.4153 | 0.0395 | | |
| 2 | −3.4709 | 0.0995* | | | 5 | 3.4709 | 0.0542 | 1.620 | 60.3 |
| 3 | −0.4153 | 0.0101 | 1.536 | 39.7 | 6 | −0.3907 | | | |

0.0395* = 0.0500 + 0.0495

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | 0.000038 | −0.000092 | −0.000034 | −0.000353 | 0.000473 | 0.365 | 1.05% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{Fa.7}'$ |
| 100 | 0.0050 | 0.0038 | −0.0339 | −0.0186 | −0.0153 | 0.000294 | 0.000092 |
| 70 | 0.0018 | 0.0011 | −0.0150 | −0.0113 | −0.0043 | −0.000633 | −0.000331 |

注：以上象差值是按 l = −∞计算的。

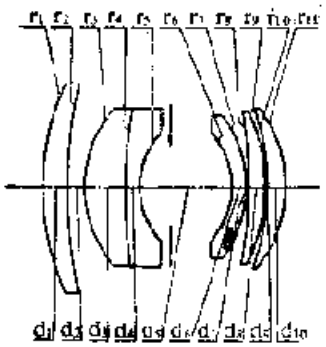


编号：05-04-010

# 高 斯 型 摄 影 物 镜

E. F. L＝1.0　　B. F. L＝0.68　　FNo. ＝2.8　　F. A. ＝±18°

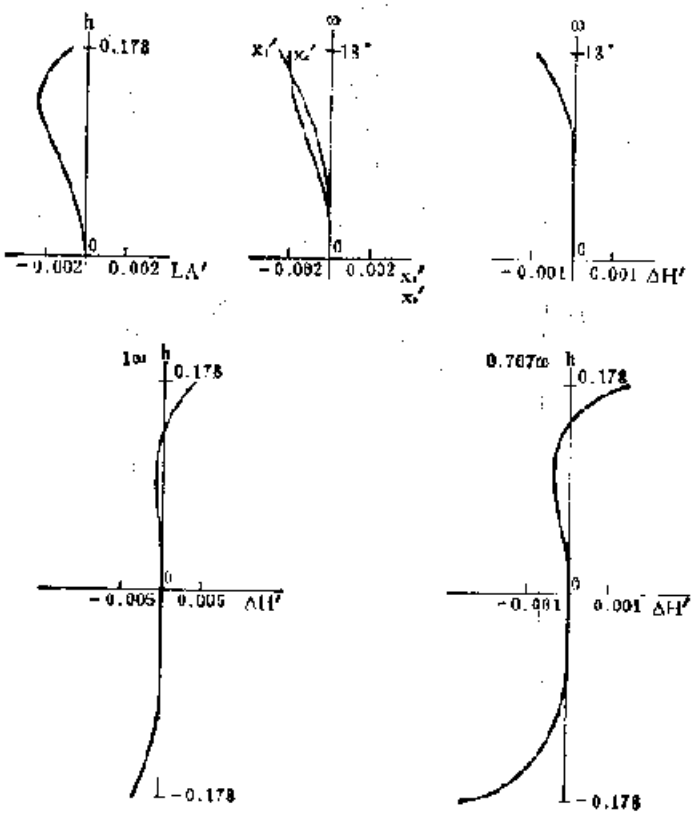


| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_c$ | $\nu_c$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.3373 | 0.0600 | 1.74795 | 44.5 | 7 | −0.2853 | 0.0028 | | |
| 2 | 1.2995 | 0.0390 | | | 8 | −1.1428 | 0.0432 | 1.62287 | 60.1 |
| 3 | 0.2895 | 0.1029 | 1.69282 | 49.5 | 9 | −0.4434 | 0.0028 | | |
| 4 | 1.1521 | 0.0339 | 1.67764 | 32.0 | 10 | −0.5971 | 0.0410 | 1.61521 | 58.4 |
| 5 | 0.1928 | 0.2234* | | | 11 | −0.8237 | | | |
| 6 | −0.2070 | 0.0309 | 1.74070 | 26.2 | | | | | |

$0.2234^* = 0.0700 + 0.1534$

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000532 | −0.000157 | 0.000063 | −0.000331 | −0.000137 | 0.324 | −0.27% |

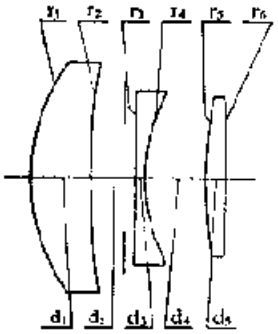
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.00088 | −0.00086 | −0.0027 | −0.0022 | −0.0005 | 0.00047 | −0.00039 |
| 70 | −0.00233 | −0.00021 | −0.0012 | −0.0017 | 0.0005 | −0.00049 | −0.00036 |



编号：05-04-011

# 改 进 的 物 镜 系 统

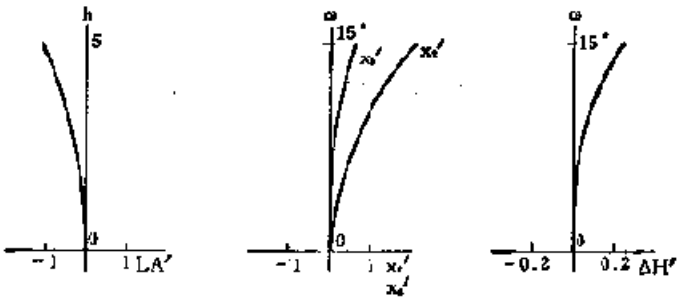
E. F. L＝100.1　　B. F. L＝78.81　　FNo. ＝10　　F. A. ＝±15°**

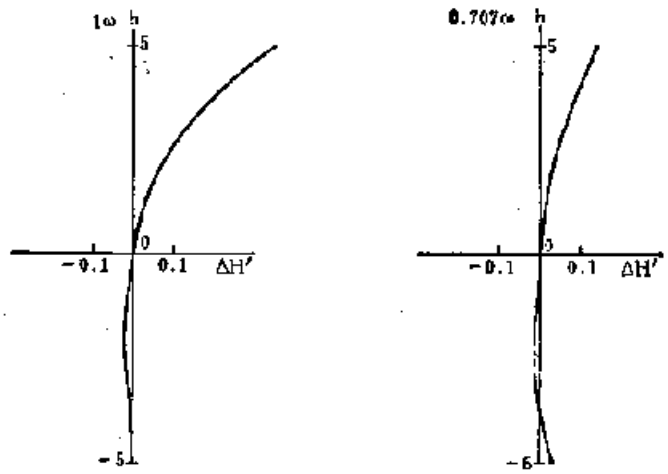


| 序号 | r | d | $n_D$ | v | 序号 | r | d | $n_D$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 14.70 | 4.36 | 1.613 | 58.6 | 4 | 13.00 | 4.28 | | |
| 2 | 60.11 | 3.30* | | | 5 | 31.87 | 1.48 | 1.620 | 36.4 |
| 3 | −2324.90 | 0.79 | 1.673 | 32.2 | 6 | −293.57 | | | |

3.30* = 2.50 + 0.80

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00508 | 0.00226 | 0.00453 | −0.00289 | 0.02578 | 26.85 | 0.94% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}$ |
| 100 | −1.077 | 0.253 | 2.069 | 0.654 | 1.415 | 0.1731 | 0.0834 |
| 70 | −0.524 | 0.093 | 1.126 | 0.246 | 0.880 | 0.0806 | 0.0408 |

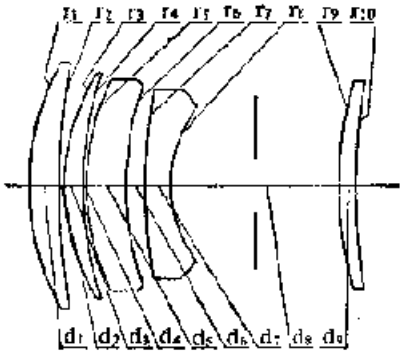


编号：05-04-012

# 远 距 离 照 相 物 镜

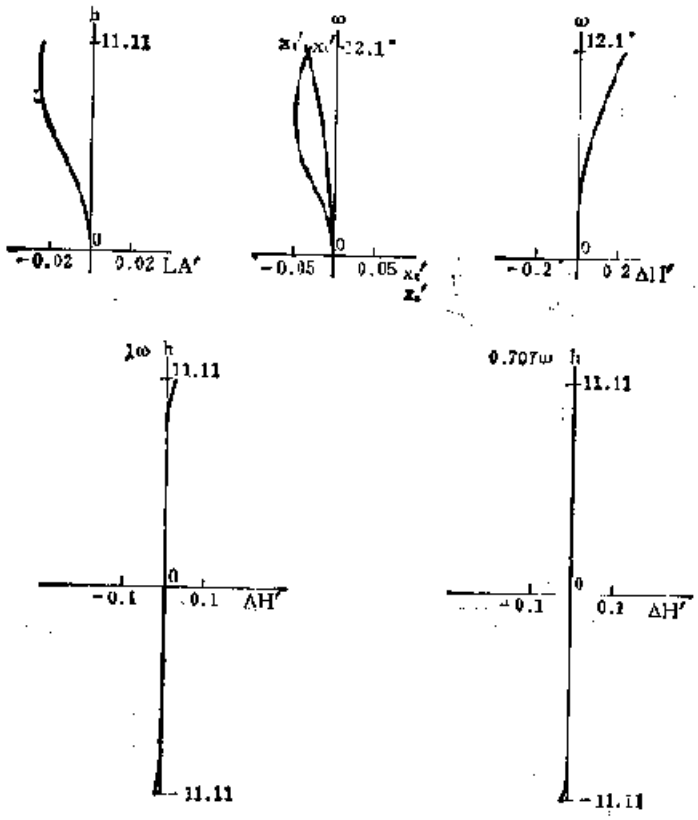
E. F. L＝100　　B. F. L－42.618　　FNo. ＝4.5　　F. A. ＝±12.1°




| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 59.42 | 4.72 | 1.58913 | 61.1 | 6 | 45.79 | 2.61 | | |
| 2 | 192.88 | 0.42 | | | 7 | 91.23 | 2.89 | 1.78470 | 26.2 |
| 3 | 51.58 | 3.86 | 1.56873 | 63.1 | 8 | 19.10 | 25.78* | | |
| 4 | 54.73 | 0.25 | | | 9 | 63.30 | 2.55 | 1.78470 | 26.2 |
| 5 | 36.24 | 6.39 | 1.70154 | 41.1 | 10 | 174.15 | | | |

25.78＋－13.00＋12.78

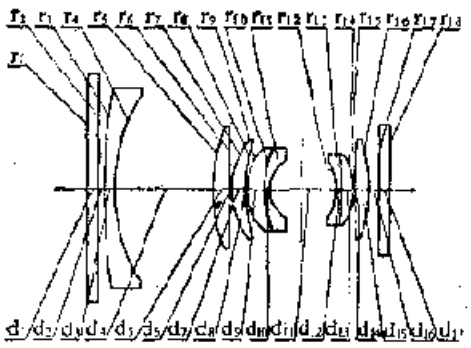
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.00182 | －0.00057 | 0.00095 | －0.00005 | 0.06888 | 21.42 | 1.08% |
| h 或ω% | LA′ | AH′ | $x_t'$ | $x_s$ | $x_t'-x_s$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | －0.0235 | 0.2307 | －0.0433 | －0.0384 | －0.0049 | 0.00327 | 0.00322 |
| 70 | －0.0248 | 0.0984 | －0.0193 | －0.0544 | 0.0351 | －0.00778 | －0.00243 |



编号：05-04-013

# 显 微 照 相 物 镜

E. F. L＝65　　B. F. L＝34.2　　FNo. ＝ 6　　F. A. ＝ ±30° **

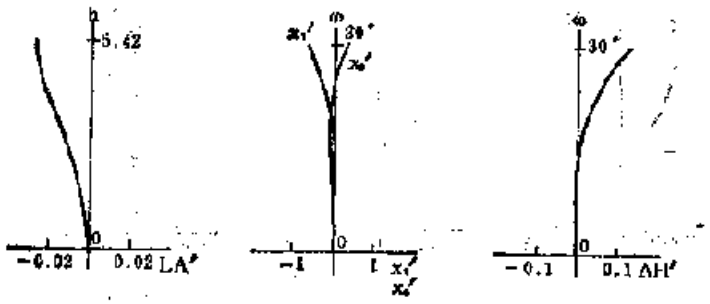


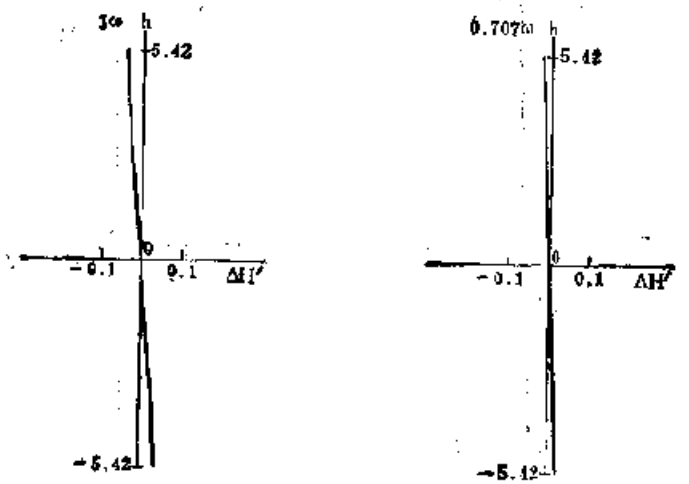
| 序号 | r | d | $n_D$ | ν | 序号 | r | d | $n_D$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ∞ | 4.000 | 1.5169 | 64.20 | 10 | 40.25 | 2.000 | 1.6722 | 32.20 |
| 2 | ∞ | 2.000 | | | 11 | 13.79 | 23.658* | | |
| 3 | 238.00 | 4.000 | 1.5891 | 61.24 | 12 | −19.76 | 2.100 | 1.6476 | 33.90 |
| 4 | 66.61 | 36.000 | | | 13 | −95.60 | 4.395 | 1.6591 | 50.88 |
| 5 | 58.00 | 6.500 | 1.5391 | 61.24 | 14 | −23.20 | 0.200 | | |
| 6 | ∞ | 0.200 | | | 15 | 731.00 | 5.200 | 1.5391 | 61.24 |
| 7 | 29.60 | 5.000 | 1.5169 | 64.20 | 16 | −52.50 | 3.775 | | |
| 8 | 49.65 | 0.200 | | | 17 | ∞ | 3.810 | 1.5224 | 59.48 |
| 9 | 21.20 | 7.094 | 1.6591 | 50.88 | 18 | ∞ | | | |

23.658* = 10.000 + 13.658

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000805 | −0.000651 | 0.001775 | −0.010330 | 0.012281 | 37.41 | 0.35% |

| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t - x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.0282 | 0.1297 | −0.6715 | 0.2610 | −0.9325 | −0.0044 | −0.0034 |
| 70 | −0.0217 | 0.0334 | −0.2078 | −0.1365 | −0.0713 | −0.0035 | −0.0039 |



编号：05-04-014

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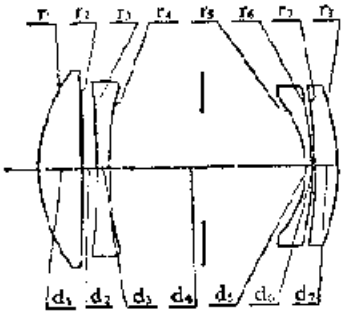
图书馆

# 四 片 型 摄 影 物 镜

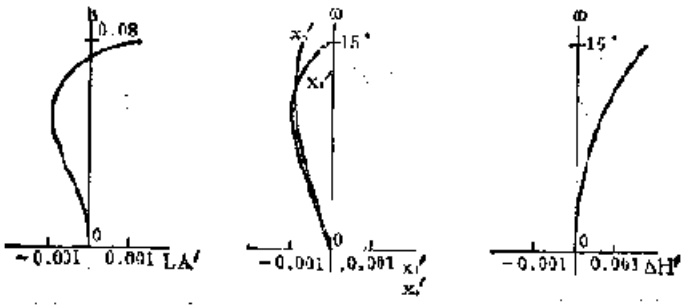
E.F.L＝1.0　　B.F.L＝0.5105　　FNo. ＝6.3　　F.A. 1 15°

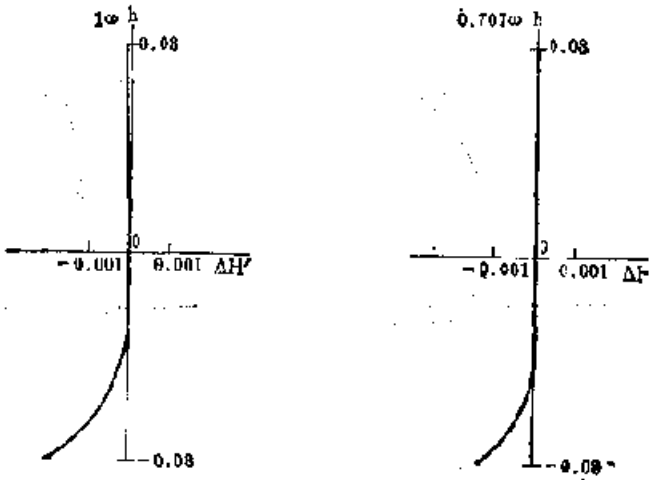



| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_e$ | $\nu_e$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.20485 | 0.05013 | 1.62286 | 60.06 | 5 | −0.12450 | 0.01003 | 1.51872 | 63.96 |
| 2 | −2.27185 | 0.02005 | | | 6 | −0.37165 | 0.00060 | | |
| 3 | −0.95740 | 0.01404 | 1.67764 | 31.97 | 7 | 1.92084 | 0.03000 | 1.64647 | 47.06 |
| 4 | 0.40183 | 0.24062* | | | 8 | −0.26705 | | | |

0.24062* ＝0.10000＋0.14062

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000053 | 0.000037 | −0.000017 | −0.000024 | 0.000349 | 0.267 | 0.62% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{In.T}'$ |
| 100 | 0.00123 | 0.00165 | −0.00012 | −0.00038 | 0.00026 | −0.00105 | −0.00032 |
| 70 | −0.00092 | 0.00069 | −0.00104 | −0.00098 | −0.00006 | −0.00089 | −0.00011 |

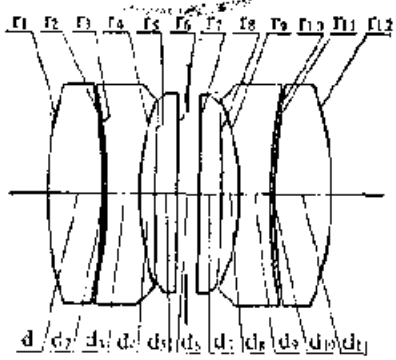


编号：05-04-015

# 校正了球差、彗散、色差的对称型摄影及重显透镜系统

E. F. L＝100　　B. F. L＝92.87　　FNo. ＝ 9　　F. A. ＝±20° **

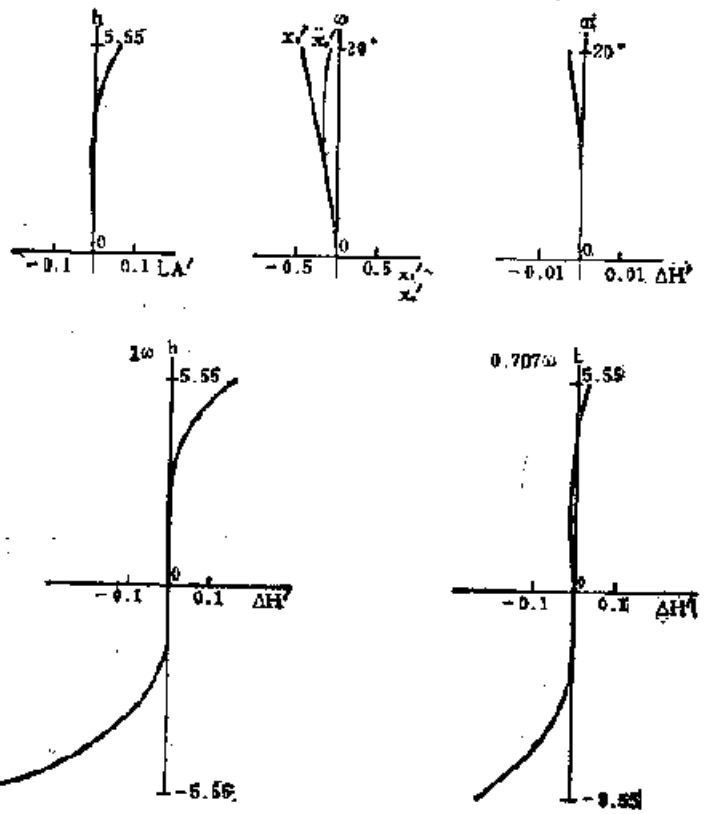



| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 20.52 | 3.450 | 1.62146 | 57.4 | 7 | ∞ | 1.420 | 1.49715 | 66.9 |
| 2 | −41.17 | 0.093 | | | 8 | −128.26 | 0.800 | | |
| 3 | −38.34 | 2.170 | 1.54960 | 50.0 | 9 | −16.95 | 2.170 | 1.54960 | 50.0 |
| 4 | 16.95 | 0.800 | | | 10 | 38.34 | 0.093 | | |
| 5 | 128.26 | 1.420 | 1.49715 | 66.9 | 11 | 41.17 | 3.450 | 1.62146 | 57.4 |
| 6 | ∞ | 1.330* | | | 12 | −20.52 | | | |

1.330* = 0.665 + 0.665

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | 0.00917 | 0.00251 | −0.00070 | 0.00290 | −0.00004 | 36.52 | −0.01% |
| h 或 ○% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t-x_s$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.0608 | −0.0039 | −0.4506 | −0.0909 | −0.3597 | −0.1557 | −0.0544 |
| 70 | 0.0049 | −0.0018 | −0.3113 | −0.1821 | −0.1292 | −0.0969 | −0.0358 |

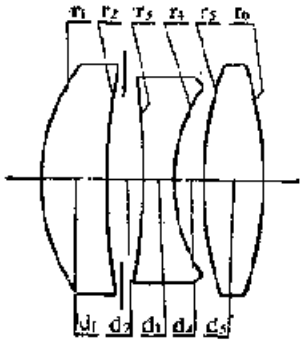
注：以上象差值是按 l ＝ −∞计算的。



编号：05-04-016

# 三片型投影透镜系统

E. F. L＝99.91　　B. F. L＝65.65　　FNo. ＝2.5　　F. A. ＝±20.05°



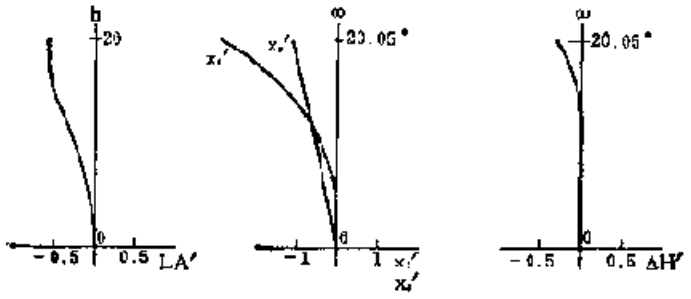

| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 49.530 | 16.87 | 1.94283 | 36.1 | 4 | 42.293 | 7.93 | | |
| 2 | 195.690 | 8.59* | | | 5 | 93.029 | 14.87 | 1.94283 | 36 |
| 3 | −188.130 | 8.00 | 1.94910 | 20.4 | 6 | −95.029 | | | |

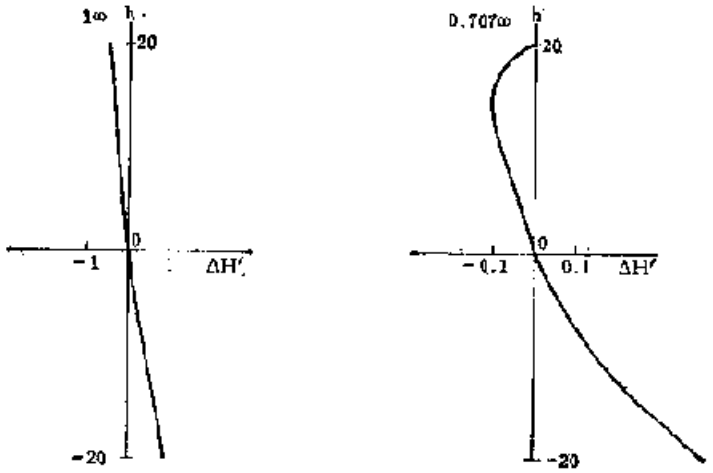
8.59* = 4.00 + 4.59

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.09485 | −0.00051 | −0.00322 | −0.16129 | 0.02855 | 36.47 | −0.82% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{F1}$ | $K_{f0.7}$ |
| 100 | −0.553 | −0.299 | −3.974 | −1.064 | −2.910 | 0.1964 | 0.1115 |
| 70 | −0.461 | −0.015 | −1.028 | −0.838 | −0.190 | 0.2051 | 0.0756 |

注：1. M＝37.894×；

2. 以上象差值是按 l ＝ −∞计算的。

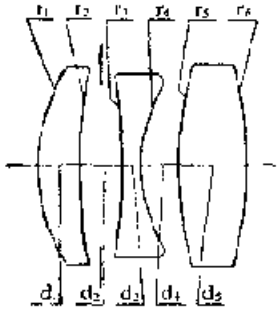


编号：05-04-017

# 三片型投影透镜系统

E. F. L＝100　　B. F. L＝68.39　　FNo.＝2.8　　F. A.＝±20.5°



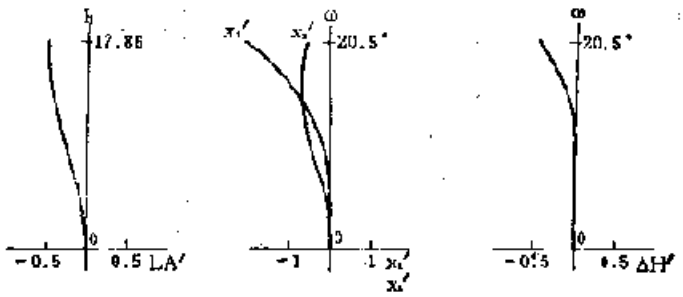

| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 43.418 | 10.597 | 1.94283 | 36.1 | 4 | 38.567 | 8.982 | | |
| 2 | 152.150 | 10.120* | | | 5 | 97.978 | 16.710 | 1.94283 | 36.1 |
| 3 | −234.000 | 5.000 | 1.94010 | 20.4 | 6 | −97.978 | | | |

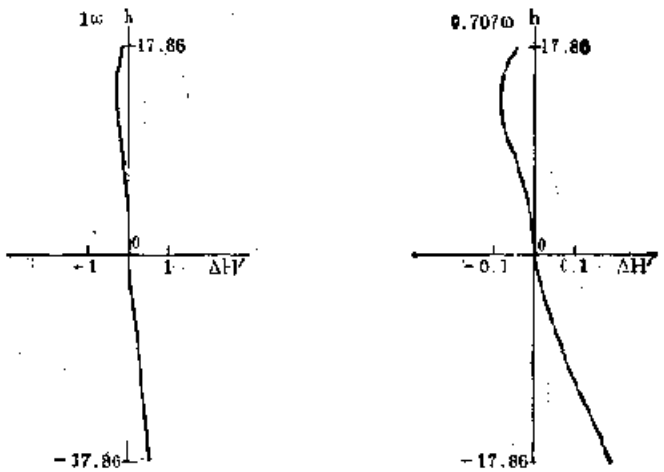
10.120* = 5.000 + 5.120

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0695 | −0.0147 | 0.0138 | −0.1248 | −0.0272 | 37.42 | −1.25% |
| h 或ω% | $\overline{LA'}$ | $\Delta H'$ | $x_t$ | $x_s'$ | $x_t - x_s$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.505 | −0.471 | −2.133 | −0.538 | −1.595 | 0.1507 | 0.0503 |
| 70 | −0.422 | −0.074 | −0.581 | −0.653 | 0.052 | 0.0733 | 0.0212 |

注：1. $M = 29.031^x$；

2. 以上象差值是按 $l = -\infty$ 计算的。

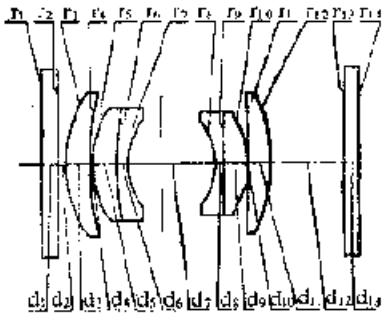


编号：05-04-018

# 物　　镜

E. F. L＝80.8　　B. F. L＝33.1　　FNo. ＝ 6　　F. A. ＝ ±25°**

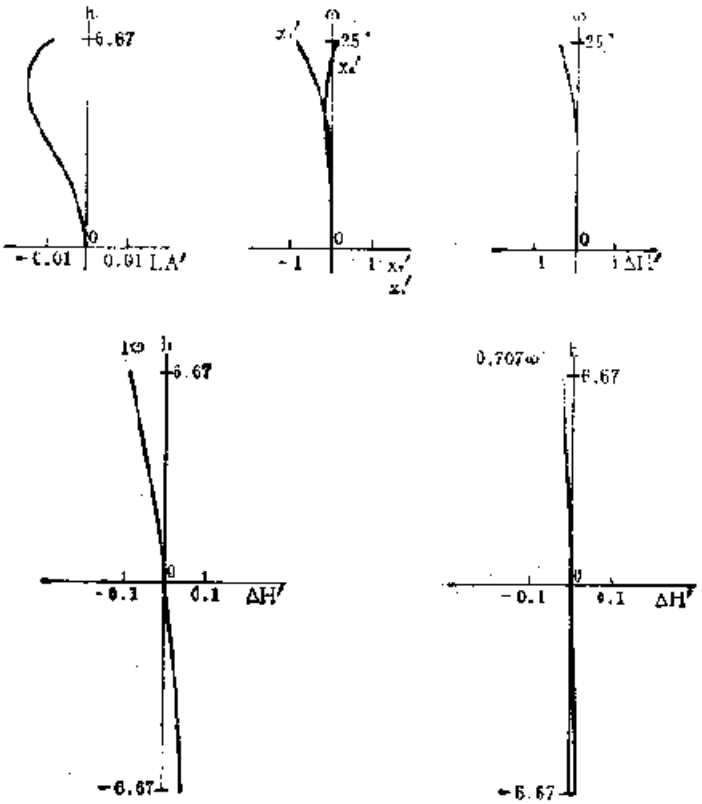


| 序号 | r | d | $n_D$ | $\nu$ | 序号 | r | d | $n_D$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ∞ | 4.000 | 1.5163 | 64.23 | 8 | −16.41 | 2.000 | 1.6039 | 38.03 |
| 2 | ∞ | 2.000 | | | 9 | −741.30 | 5.557 | 1.6591 | 50.38 |
| 3 | 33.80 | 6.000 | 1.5891 | 61.24 | 10 | −23.85 | 0.200 | | |
| 4 | 75.78 | 0.200 | | | 11 | −345.40 | 5.500 | 1.5891 | 61.24 |
| 5 | 26.20 | 6.905 | 1.6591 | 50.38 | 12 | −59.30 | 18.057 | | |
| 6 | 84.00 | 2.500 | 1.6200 | 36.34 | 13 | ∞ | 3.810 | 1.5223 | 59.28 |
| 7 | 16.58 | 21.386* | | | 14 | ∞ | | | |

21.386* = 8.550 + 12.836

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00065 | −0.00068 | 0.00092 | −0.00865 | −0.03205 | 37.67 | −1.19% |

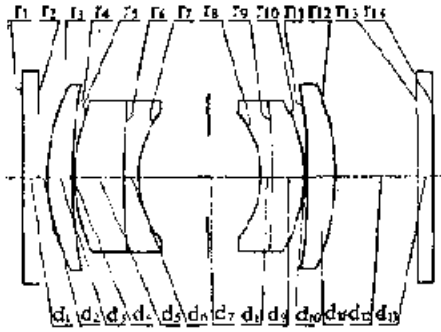
| h 或 ω % | $\Gamma A'$ | $\Delta H'$ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.0093 | −0.4497 | −0.9129 | 0.0242 | −0.3371 | −0.0236 | −0.0131 |
| 70 | −0.0146 | −0.1118 | −0.2907 | −0.1508 | −0.1399 | −0.0069 | −0.0044 |



编号：05-04-019

# 物　　镜

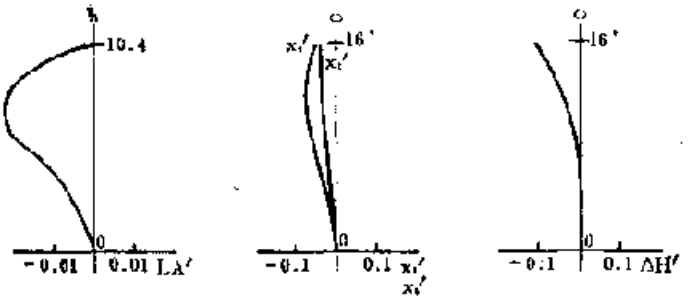
E. F. L＝125　　B. F. L＝28　　FNo. ＝ 6　　F. A. ＝ ±16° **

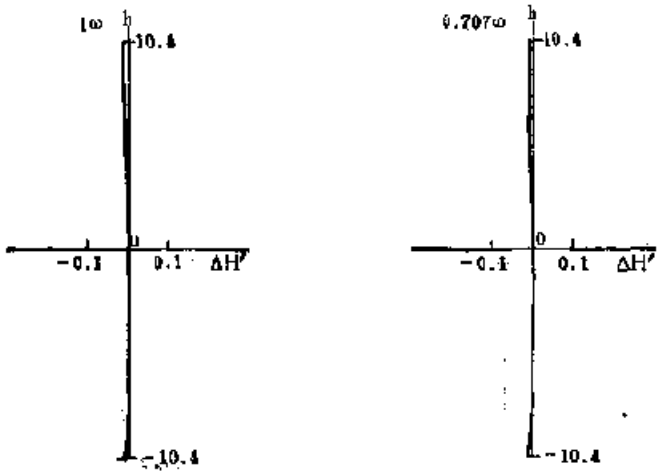



| 序号 | r | d | $n_D$ | ν | 序号 | r | d | $n_D$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | ∞ | 4.000 | 1.5163 | 64.20 | 8 | −23.50 | 3.000 | 1.6039 | 38.02 |
| 2 | ∞ | 2.000 | | | 9 | −275.00 | 8.100 | 1.6591 | 50.88 |
| 3 | 48.83 | 5.900 | 1.5892 | 61.24 | 10 | −33.18 | 0.215 | | |
| 4 | 110.60 | 0.215 | | | 11 | −398.00 | 6.970 | 1.5892 | 61.24 |
| 5 | 42.75 | 12.150 | 1.659 | 50.88 | 12 | −57.54 | 54.110 | | |
| 6 | 150.50 | 3.860 | 1.6200 | 36.34 | 13 | ∞ | 3.810 | 1.5224 | 59.18 |
| 7 | 26.70 | 33.080* | | | 14 | ∞ | | | |

33.080* = 12.950 + 20.130

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00120 | −0.00107 | 0.00088 | −0.00402 | −0.01332 | 35.70 | −0.31% |
| h 或ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}'$ | $K_{T1.7}'$ |
| 100 | 0.0028 | −0.1124 | −0.0399 | −0.0518 | 0.0119 | −0.0138 | −0.0074 |
| 70 | −0.0218 | −0.0343 | −0.0353 | −0.0729 | 0.0376 | −0.0118 | −0.0059 |

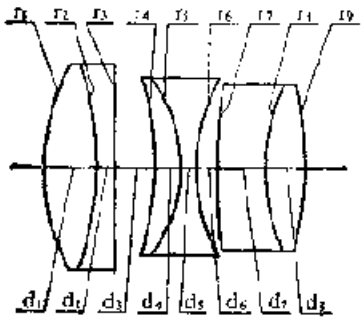


编号：05-04-020

# 三 组 元 物 镜

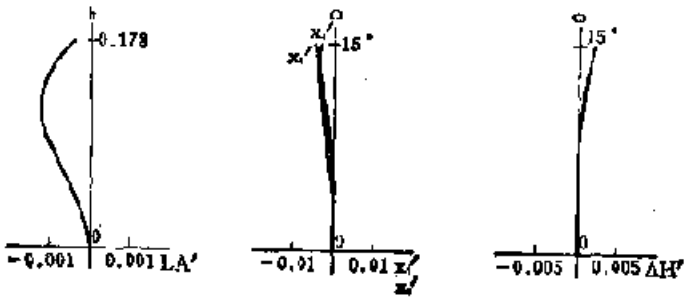
E. F. L＝1.0　　B. F. L－0.7　　FNo. ＝2.8　　F. A. ＝±15°

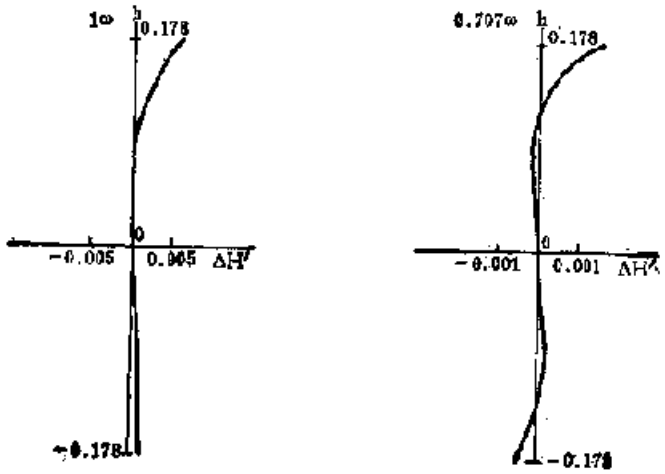


| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_e$ | $\nu_e$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.40218 | 0.1007 | 1.60282 | 49.45 | 6 | 0.34354 | 0.0373 | | |
| 2 | －0.59980 | 0.0325 | 1.59910 | 38.98 | 7 | 1.18706 | 0.0889 | 1.62767 | 36.51 |
| 3 | 0.40992 | 0.0724* | | | 8 | 0.37599 | 0.0738 | 1.75480 | 39.54 |
| 4 | －0.53278 | 0.0474 | 1.81140 | 31.02 | 9 | －0.67400 | | | |
| 5 | －0.28701 | 0.0345 | 1.69418 | 30.92 | | | | | |

0.0724* = 0.0400 + 0.0324

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP( : ω) |
|---|---|---|---|---|---|---|---|
| | －0.000382 | －0.000178 | 0.000085 | －0.000477 | 0.000668 | 0.268 | 0.78% |
| h 或ω% | LA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t - x_s'$ | $K'_{T1}$ | $K'_{D.T}$ |
| 100 | －0.00043 | 0.00209 | －0.0049 | －0.0040 | －0.0009 | 0.00359 | 0.00112 |
| 70 | －0.00134 | 0.00071 | －0.0026 | －0.0028 | 0.0002 | 0.00054 | 0.00002 |

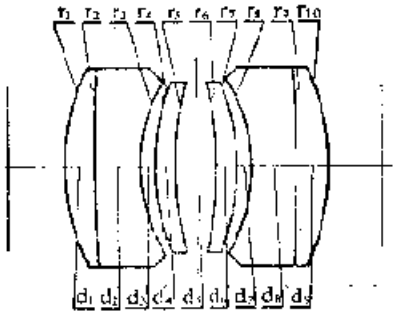


编号：05-04-021

# 对称四组元摄影复印系统

E. F. L＝1.0　　B. F. L＝0.8529　　FNo. ＝4.5　　F. A. ＝±26.5°

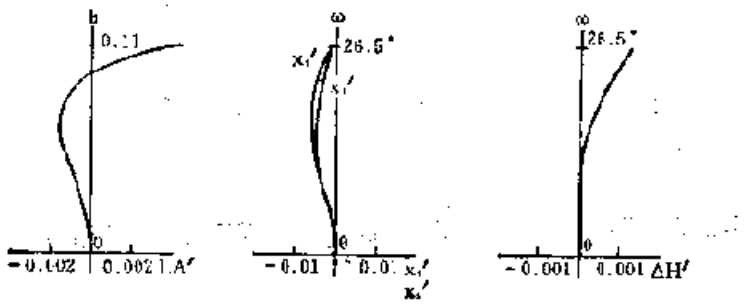


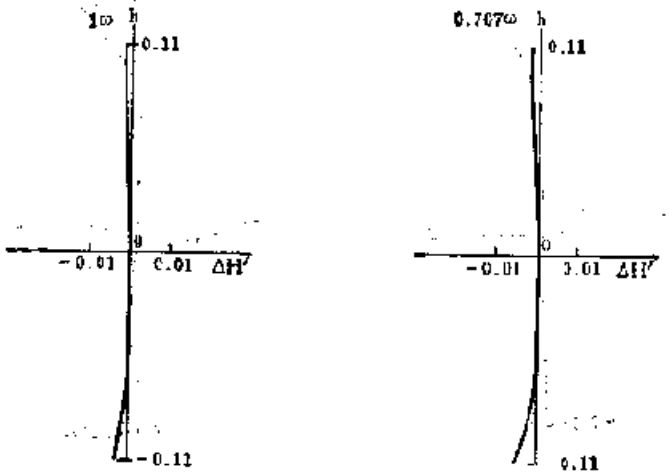

| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.284724 | 0.038625 | 1.71700 | 47.9 | 6 | −0.449099 | 0.024640 | 1.68578 | 44.0 |
| 2 | 2.017607 | 0.056605 | 1.62588 | 35.6 | 7 | −0.298009 | 0.018313 | | |
| 3 | 0.208707 | 0.018313 | | | 8 | −0.208707 | 0.056605 | 1.62588 | 35.6 |
| 4 | 0.298009 | 0.024640 | 1.68578 | 44.0 | 9 | −2.017807 | 0.038625 | 1.71700 | 47.9 |
| 5 | 0.449099 | 0.047282* | | | 10 | −0.284724 | | | |

0.047282* − 0.023641 + 0.023641

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | CI | QF(λ ω) |
|---|---|---|---|---|---|---|---|
| | −0.000205 | −0.000245 | −0.000037 | −0.000312 | 0.000180 | 0.497 | 0.27% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.00403 | 0.00132 | −0.00109 | −0.00109 | 0 | −0.00304 | −0.00196 |
| 70 | −0.00157 | 0.00038 | −0.00578 | 0.00463 | −0.00115 | 0.00332 | −0.00142 |

注：以上象差值是按 $\bar{l} = -\infty$ 计算的。

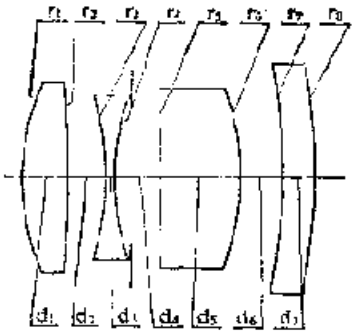


编号：05-04-022

# 对于无限远和1:1光学放大率之间的大变化的物距上，有一个近似不变的高性能图象的四组元物镜

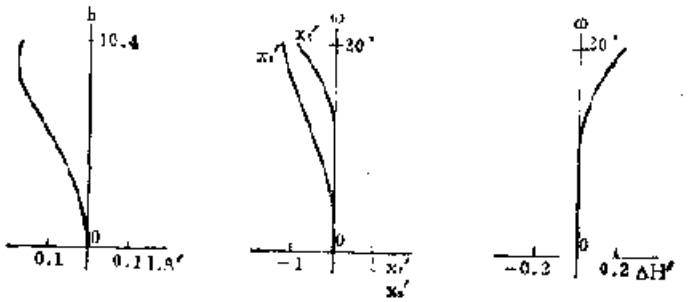
E. F. L＝100　　B. F. L＝71.3　　FNo. ＝4.8　　F. A. ＝±20° **

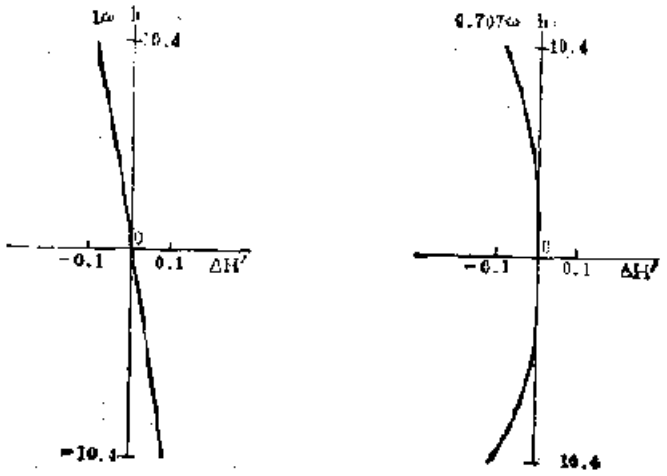


| 序号 | r | d | $n_d$ | v | 序号 | r | d | $n_d$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 42.745 | 8.177 | 1.6935 | 51.56 | 5 | 19212.109 | 14.750 | 1.6405 | 60.10 |
| 2 | −200.015 | 0.938 | | | 6 | −48.388 | 7.790 | | |
| 3 | −58.076 | 1.588 | 1.6461 | 34.05 | 7 | −169.419 | 6.039 | 1.5168 | 64.17 |
| 4 | 43.875 | 8.431* | | | 8 | −116.875 | | | |

8.431* = 2.000 + 6.431

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0088 | −0.0074 | 0.0192 | −0.0561 | 0.0146 | 36.40 | 0.56% |
| h或ω% | $L.A'$ | $\Delta H'$ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K'_{T1}$ | $K'_{To.7}$ |
| 100 | −0.169 | 0.205 | −0.968 | −1.315 | 0.347 | −0.0079 | 0.0003 |
| 70 | −0.148 | 0.044 | −0.096 | −0.788 | 0.692 | −0.0967 | −0.0392 |

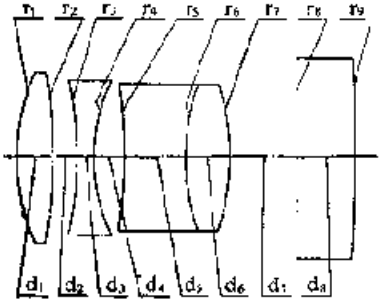


编号：05-04-023

# 对于无限远和1:1光学放大率之间的大变化的物距上，有一个近似不变的高性能图象的四组元物镜

E. F. L＝100　　B. F. L＝68.6　　FNo. ＝3.9　　F. A. ＝±20°**

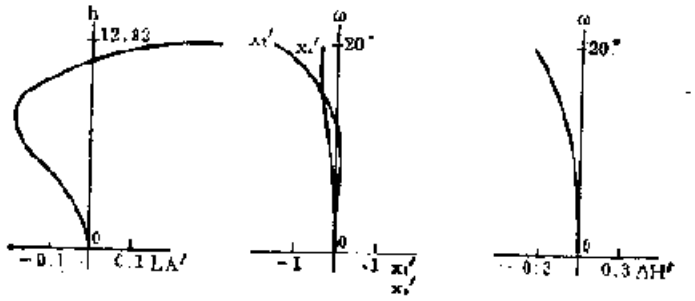


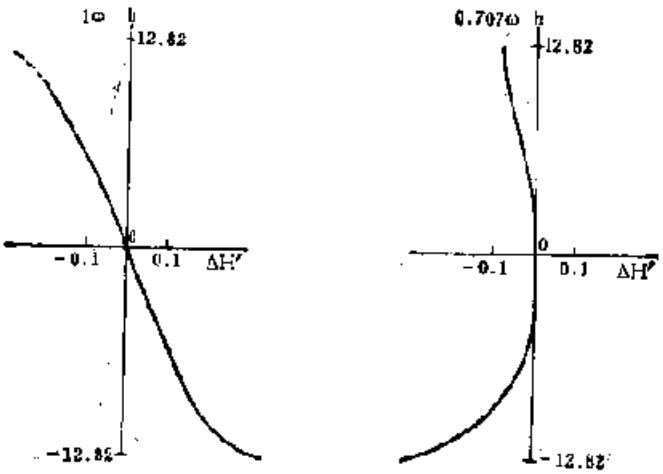

| 序号 | r | d | $n_d$ | v | 序号 | r | d | $n_d$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 38.2267 | 6.467 | 1.71700 | 48.0 | 6 | 43.1965 | 8.083 | 1.64050 | 60.1 |
| 2 | −170.7530 | 4.558 | | | 7 | −45.4368 | 12.124 | | |
| 3 | −57.6119 | 3.346 | 1.62237 | 36.0 | 8 | −4253.2700 | 10.734 | 1.51009 | 63.5 |
| 4 | 31.9357 | 5.436* | | | 9 | −390.6520 | | | |
| 5 | −122.6870 | 11.640 | 1.52341 | 51.5 | | | | | |

5.436* = 1.436 + 4.000

注：第三片和第四片采用光胶。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H′ | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.0285 | −0.0123 | 0.0201 | −0.0453 | −0.0849 | 36.38 | −0.89% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{Tc.7}$ |
| 100 | 0.3299 | −0.3256 | −1.553 | −0.353 | −1.200 | | −0.0077 |
| 70 | −0.1846 | −0.1217 | −0.107 | −0.295 | 0.188 | −0.2026 | −0.0700 |

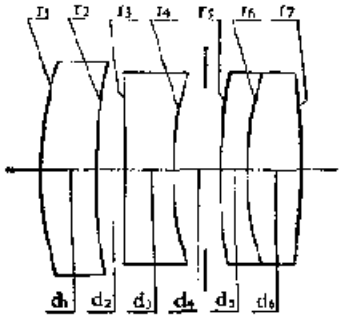


编号：05-04-024

# 摄　影　物　镜

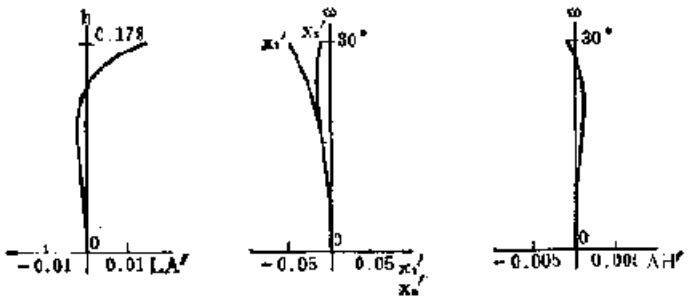
E. F. L＝1.0　　B. F. L＝0.79　　FNo. ＝2.8　　F. A. ＝＝30°

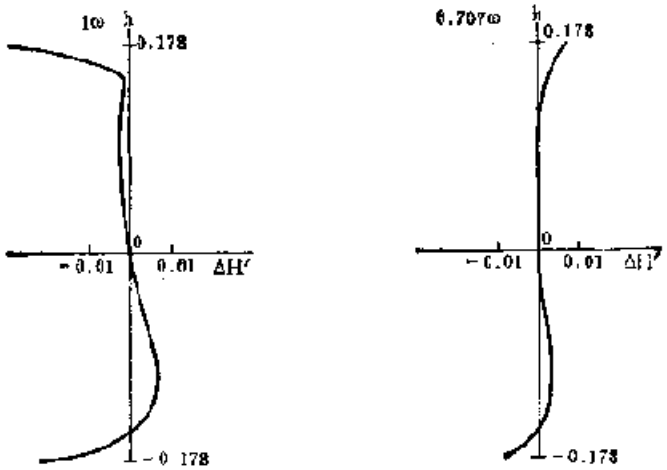



| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.9308 | 0.100 | 1.80420 | 46.6 | 5 | 1.2015 | 0.025 | 1.72825 | 28.3 |
| 2 | 0.9499 | 0.027 | | | 6 | 0.3308 | 0.100 | 1.83060 | 36.5 |
| 3 | −2.8529 | 0.045 | 1.75690 | 31.7 | 7 | −0.9269 | | | |
| 4 | 0.3074 | 0.042* | | | | | | | |

0.042* = 0.030 + 0.012

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00080 | 0.00011 | −0.00025 | −0.00209 | 0.00193 | 0.58 | −0.18% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{Z1}'$ | $K_{T0.7}'$ |
| 100 | 0.0150 | −0.0010 | −0.0507 | −0.0097 | −0.0410 | −0.0259 | 0.00270 |
| 70 | −0.0015 | 0.0012 | −0.0201 | −0.0140 | −0.0064 | −0.0013 | 0.00169 |

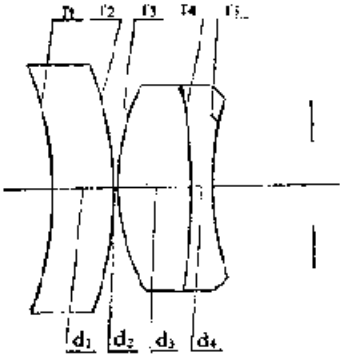


编号：05-04-025

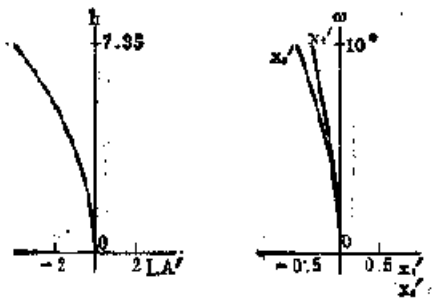
# 带有后光栏的摄影物镜

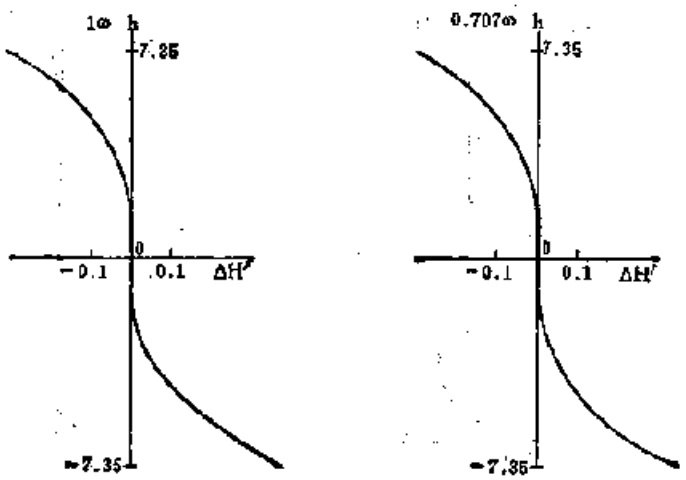
E.F.L=89.8　B.F.L=88.3　FNo.=6.8　F.A.=±10°**　$L_{p5}'$=12.000




| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | -41.782 | 7.510 | 1.52300 | 59.50 | 4 | -64.063 | 2.692 | 1.62004 | 36.37 |
| 2 | -42.684 | 0.250 | | | 5 | 38.803 | | | |
| 3 | 27.037 | 9.012 | 1.60738 | 56.65 | | | | | |

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H' | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | -0.04033 | 0.00114 | 0.00068 | -0.00629 | 0.01478 | 17.61 | 0.58% |
| h或ω% | LA' | ΔH' | $x_1'$ | $x_3'$ | $x_1'-x_3'$ | $K_{T1}'$ | $K_{T0}'$ |
| 100 | -3.946 | 0.102 | -0.317 | -0.511 | 0.194 | 0.0451 | 0.0203 |
| 70 | -1.985 | 0.036 | -0.179 | -0.259 | 0.080 | 0.0274 | 0.0124 |

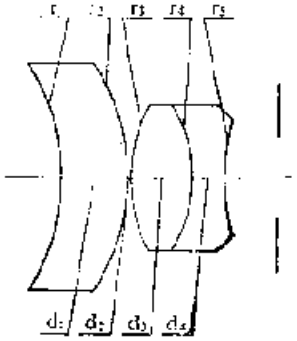


编号：05-04-026

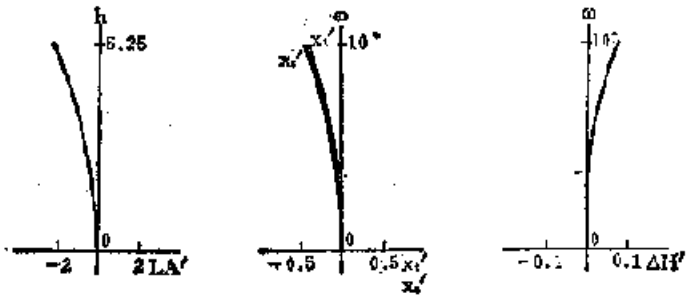
# 带有后光栏的摄影物镜

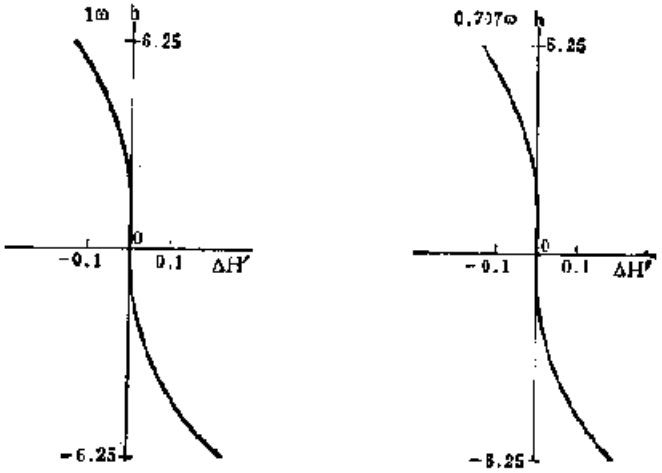
E. F. L＝100　　B. F. L＝85.9　　FNo. ＝8　　F. A. ＝±10°**　　$L'_{ps}$＝10.00




| 序号 | r | d | $n_d$ | v | 序号 | r | d | $n_d$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | −88.373 | 12.11 | 1.52249 | 59.40 | 4 | −25.430 | 5.75 | 1.62004 | 36.37 |
| 2 | −39.249 | 0.61 | | | 5 | 40.729 | | | |
| 3 | 30.004 | 11.54 | 1.60729 | 49.40 | | | | | |

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | UP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.01841 | 0.00115 | −0.00016 | −0.00330 | 0.01006 | 17.64 | 0.45% |
| h 或 ω% | LA′ | ΔH′ | $x'_t$ | $x'_s$ | $x'_t - x'_s$ | $K'_{T1}$ | $K'_{T0.7}$ |
| 100 | −2.303 | 0.079 | −0.418 | −0.429 | 0.011 | 0.0382 | 0.0210 |
| 70 | −1.165 | 0.028 | −0.229 | −0.220 | −0.009 | 0.0239 | 0.0129 |

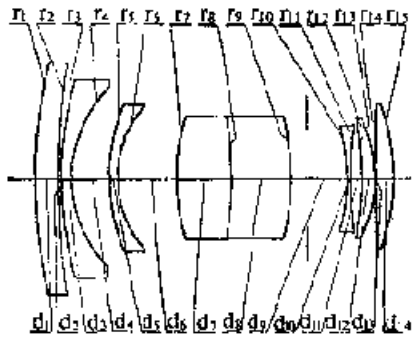


编号：05-04-027

# 逆聚焦型透镜系统

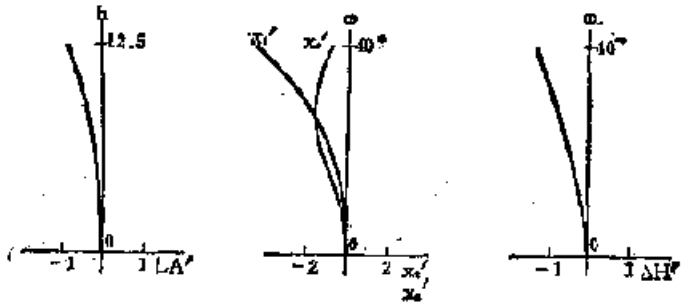
E. F. L＝97.4　　B. F. L＝132.8　　FNo. ＝9.9　　F. A. ＝±40°

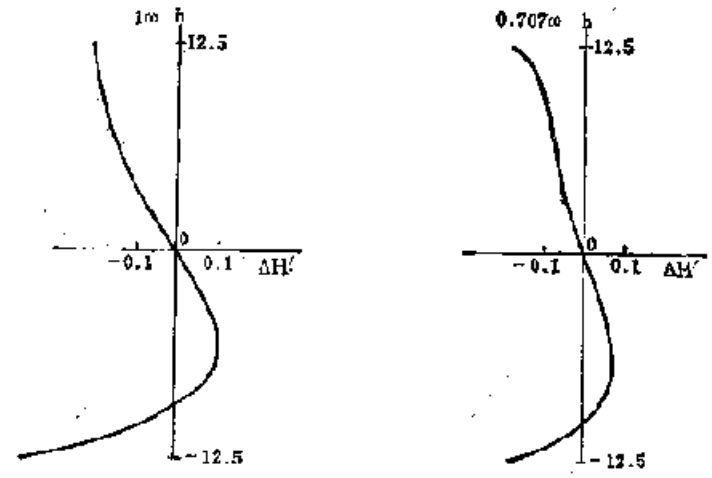


| 序号 | r | d | n | $\nu_d$ | 序号 | r | d | n | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 180.00 | 9.75 | 1.65130 | 58.5 | 9 | −92.00 | 20.40* | | |
| 2 | 339.30 | 0.18 | | | 10 | −75.27 | 1.80 | 1.75520 | 27.5 |
| 3 | 140.97 | 3.97 | 1.65160 | 58.5 | 11 | 161.19 | 3.25 | | |
| 4 | 47.83 | 13.72 | | | 12 | −124.00 | 5.78 | 1.60738 | 56.7 |
| 5 | 71.30 | 2.89 | 1.65160 | 58.5 | 13 | −53.71 | 0.18 | | |
| 6 | 40.25 | 21.84 | | | 14 | 6317.00 | 6.50 | 1.64250 | 58.1 |
| 7 | 76.61 | 19.86 | 1.67003 | 47.2 | 15 | −76.79 | | | |
| 8 | −144.40 | 22.38 | 1.66950 | 51.5 | | | | | |

20.40* = 6.40 + 14.00

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 m) |
|---|---|---|---|---|---|---|---|
| | −0.0369 | 0.0265 | 0.0013 | −0.1143 | −0.5133 | 81.65 | −1.5% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | −0.757 | −1.275 | −4.488 | −0.791 | −3.697 | −0.2868 | −0.0711 |
| 70 | −0.459 | −0.802 | −1.759 | −1.545 | −0.214 | −0.1680 | −0.0218 |

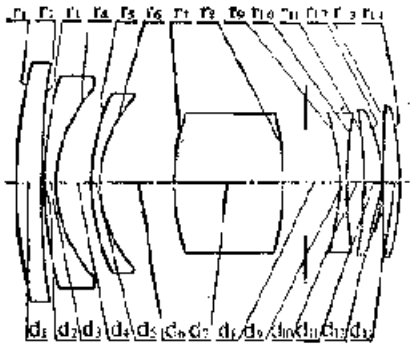


编号：05-04-028

# 逆聚焦型透镜系统

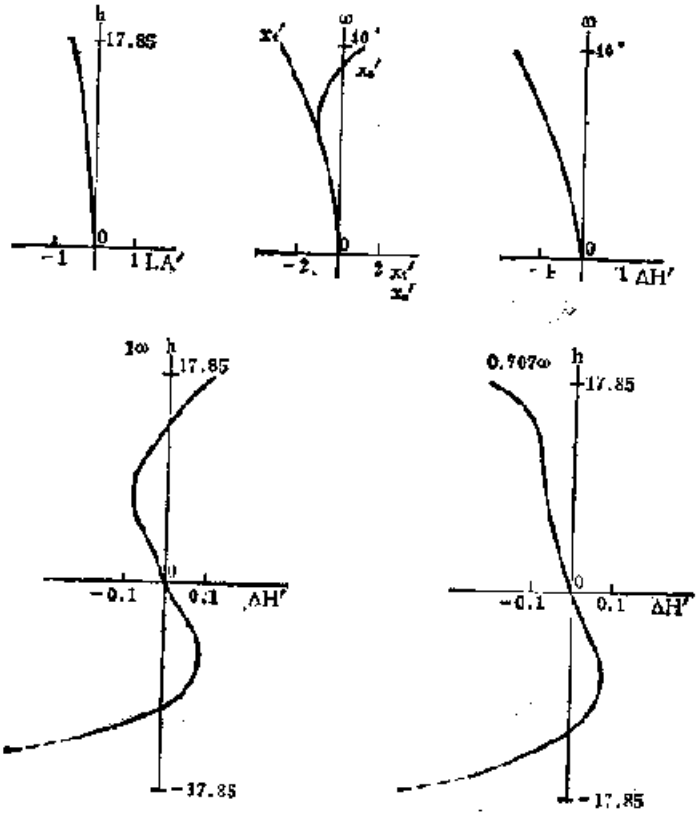
E. F. L＝100　　B. F. L＝138.8　　FNo. ＝2.8　　F. A. ＝±40°



| 序号 | r | d | n | $\nu_d$ | 序号 | r | d | n | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 183.46 | 9.25 | 1.64831 | 33.8 | 8 | −100.25 | 20.67* | | |
| 2 | 356.30 | 0.20 | | | 9 | −73.82 | 2.95 | 1.74000 | 28.2 |
| 3 | 141.73 | 3.94 | 1.62041 | 60.3 | 10 | 163.39 | 5.90 | | |
| 4 | 49.02 | 13.78 | | | 11 | −183.07 | 6.50 | 1.62041 | 60.3 |
| 5 | 78.54 | 2.95 | 1.65830 | 57.3 | 12 | −57.87 | 0.20 | | |
| 6 | 45.77 | 26.77 | | | 13 | 13780.00 | 6.60 | 1.69680 | 55.6 |
| 7 | 82.09 | 40.55 | 1.66950 | 51.5 | 14 | −93.17 | | | |

20.67* = 8.00 + 12.67

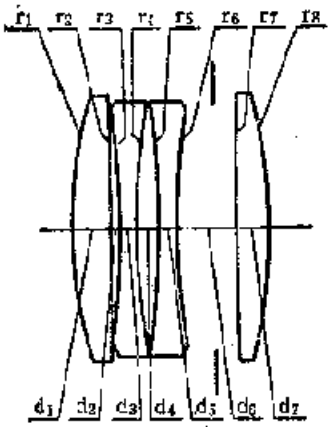
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.0883 | 0.0555 | −0.0123 | −0.1920 | −0.8111 | 83.9 | 2.1% |
| h 或 ω % | LA′ | ΔH′ | $x_1'$ | $x_2'$ | $x_1 - x_3$ | $K_{T1}'$ | $K_{TC.T}'$ |
| 100 | −0.737 | −1.789 | −3.250 | 1.030 | −4.280 | −0.4857 | −0.0839 |
| 70 | −0.418 | −0.953 | −1.575 | −1.174 | −0.101 | −0.4090 | −0.0503 |



编号：05-04-029

# 袖珍四片型摄影物镜

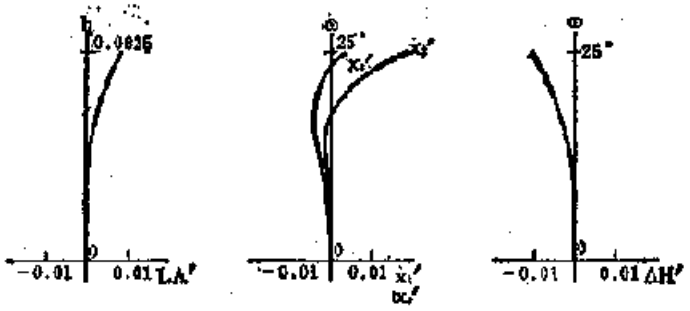
E. F. L＝1.0　　B. F. L＝1.004　　FNo. ＝8　　F. A. ＝±25°**

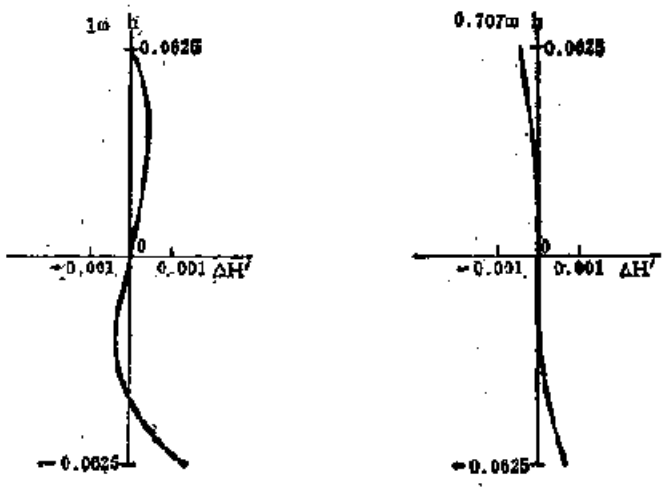



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2263 | 0.0189 | 1.682 | 48.2 | 5 | −0.4715 | 0.0084 | 1.617 | 31.0 |
| 2 | ∞ | 0.0041 | | | 6 | 0.3485 | 0.0292* | | |
| 3 | −0.6748 | 0.0084 | 1.501 | 56.4 | 7 | 1.3300 | 0.0157 | 1.667 | 48.4 |
| 4 | 0.3409 | 0.0112 | | | 8 | −0.2732 | | | |

0.0292* = 0.0192 + 0.0100

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | III | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | 0.000012 | −0.000006 | −0.000002 | −0.000126 | −0.000887 | 0.47 | −2.3% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{To.T}'$ |
| 100 | 0.00883 | −0.0107 | 0.01955 | 0.00381 | 0.01574 | 0.000739 | 0.000273 |
| 70 | 0.00240 | −0.0032 | 0.00001 | −0.00389 | 0.00390 | 0.000154 | 0.000072 |

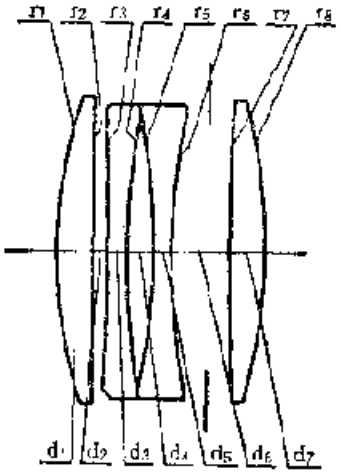


编号：05 04 030

# 袖珍四片型摄影物镜

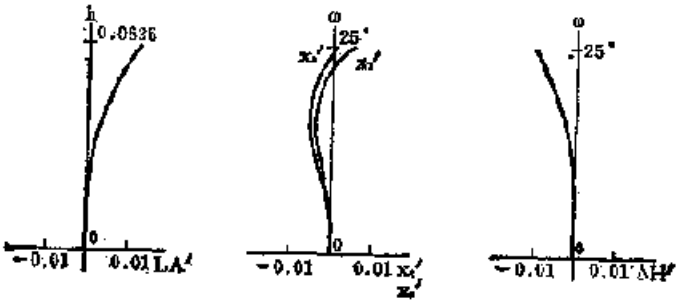
E. F. L＝0.998　　B. F. L＝0.998　　FNo. ＝8　　F. A. ＝±25°**

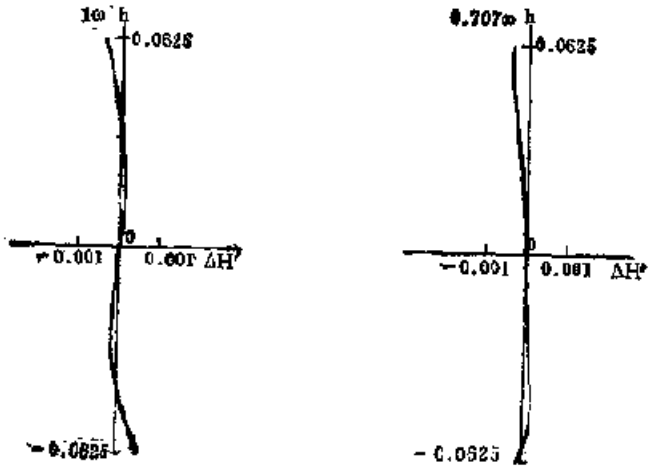



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2252 | 0.0198 | 1.623 | 56.9 | 5 | −0.3401 | 0.0084 | 1.584 | 37.0 |
| 2 | ∞ | 0.0004 | | | 6 | 0.3202 | 0.0292* | | |
| 3 | −1.4350 | 0.0084 | 1.582 | 63.5 | 7 | 1.3324 | 0.0168 | 1.713 | 53.8 |
| 4 | 0.4143 | 0.0129 | | | 8 | −0.2786 | | | |

0.0292* = 0.0192 + 0.0100

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | 0.000039 | −0.000027 | −0.000010 | 0.000133 | 0.000620 | 0.435 | −2.2% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.0135 | −0.0100 | 0.00529 | 0.00096 | 0.00433 | 0.000119 | −0.000007 |
| 70 | 0.0044 | −0.0030 | −0.00410 | −0.00510 | 0.00100 | −0.000278 | −0.000129 |

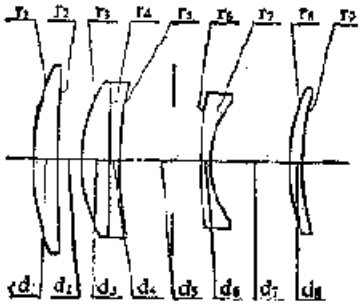


编号：05-04-031

# 远 距 离 照 相 镜 头

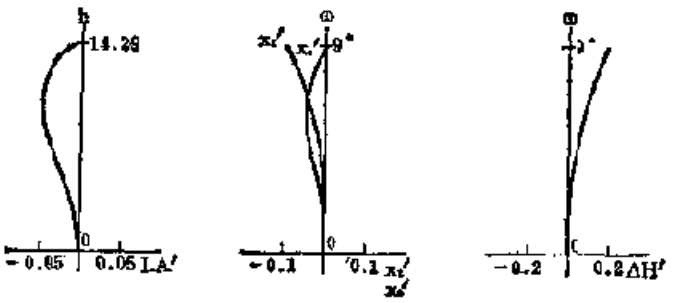
E. F. L＝100.02　　B. F. L＝87.41　　FNo. ＝3.5　　F. A. ＝±9°

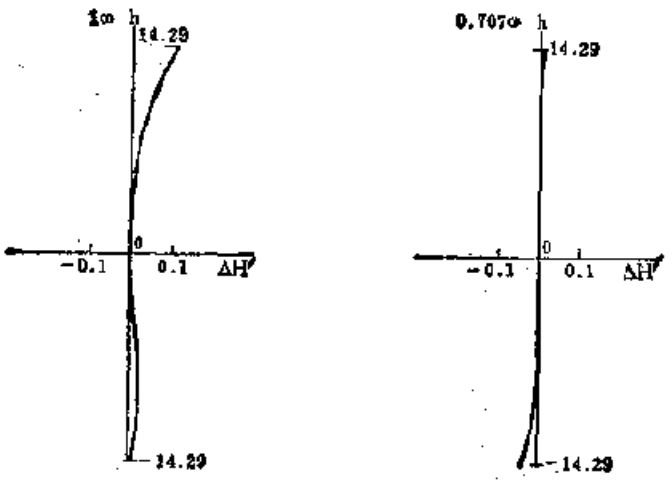


| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 45.297 | 4.40 | 1.62041 | 60.2 | 6 | 79.258 | 1.79 | 1.66998 | 39.3 |
| 2 | 855.454 | 4.43 | | | 7 | 17 670 | 14.7 | | |
| 3 | 29.103 | 5.19 | 1.48749 | 69.8 | 8 | 33.946 | 2.52 | 1.80518 | 25.4 |
| 4 | ∞ | 1.77 | 1.76182 | 26.6 | 9 | 62.394 | | | |
| 5 | 74.690 | 14.91* | | | | | | | |

14.91* ＝10.00＋4.91

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00703 | −0.00434 | 0.00038 | −0.00604 | 0.07379 | 15.83 | 1.2% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.0043 | 0.1939 | −0.0821 | 0.0055 | −0.0936 | 0.05095 | 0.02781 |
| 70 | −0.0472 | 0.0829 | −0.0320 | −0.0365 | 0.0045 | −0.00934 | −0.00160 |

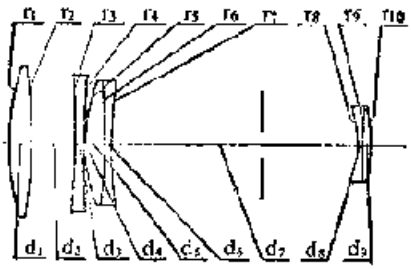


编号：05-04-032

# 小倍率超远距照相镜头

E. F. L＝100　　B. F. L＝22.87　　FNo. ＝8　　F. A. －±2°

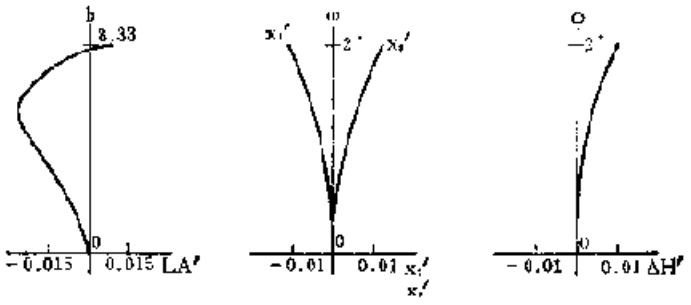


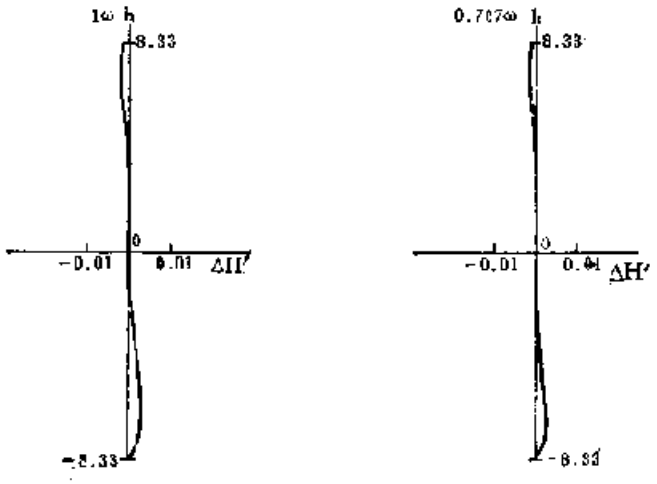

| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 30.684 | 2.504 | 1.48749 | 70.1 | 6 | －54.291 | 0.835 | 1.61340 | 43.8 |
| 2 | －86.122 | 5.587 | | | 7 | 61.567 | 33.643° | | |
| 3 | 76.803 | 1.302 | 1.80452 | 39.6 | 8 | －12.274 | 0.584 | 1.71300 | 54.0 |
| 4 | 189.555 | 0.200 | | | 9 | 42.912 | 1.002 | 1.68893 | 30.1 |
| 5 | 23.332 | 2.337 | 1.48749 | 70.1 | 10 | －24.038 | | | |

33.643° = 20.000 + 13.643

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(ω) |
|---|---|---|---|---|---|---|---|
| | －0.00143 | 0.00073 | －0.00114 | 0.00031 | 0.00173 | 3.5 | 0.3% |

| h 或ω% | $\Sigma A'$ | $\Delta H'$ | $x_e'$ | $x_d'$ | $x_t' - x_e'$ | $K_{T_1}'$ | $K_{T_{0.7}}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.0083 | 0.0104 | －0.0110 | 0.0116 | －0.0426 | －0.000746 | 0.000585 |
| 70 | －0.0252 | 0.0037 | －0.0047 | 0.0060 | －0.0107 | －0.001187 | 0.000197 |

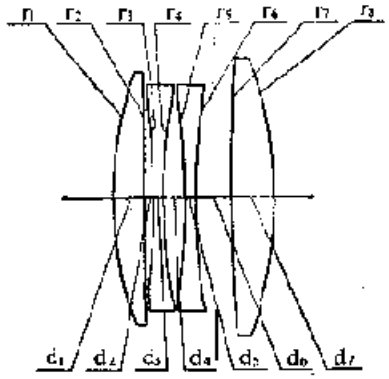


编号：05-04-033

# 塑料及玻璃的袖珍四片型物镜

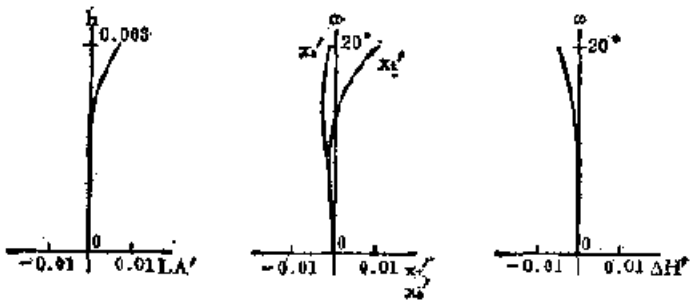
E. F. L＝0.967　　B. F. L＝0.976　　FNo. ＝7.7　　F. A. ＝±20° **

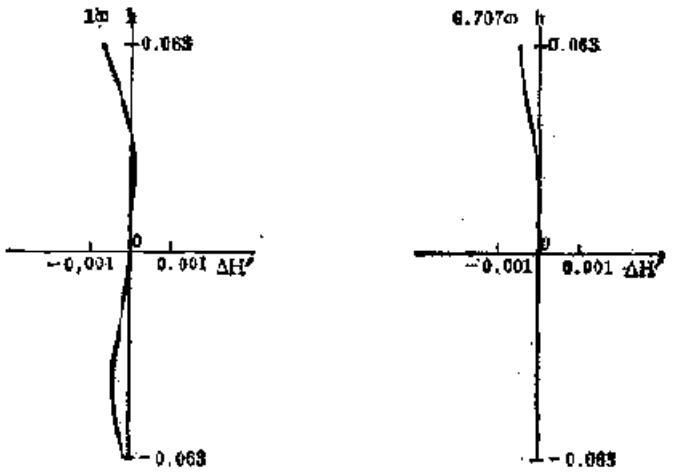



| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.233 | 0.0204 | 1.678 | 55.2 | 5 | −0.466 | 0.0063 | 1.592 | 30 |
| 2 | ∞ | 0.0044 | | | 6 | 0.392 | 0.0214* | | |
| 3 | −0.479 | 0.0063 | 1.492 | 57.2 | 7 | 1.109 | 0.0261 | 1.643 | 48.0 |
| 4 | 0.328 | 0.0125 | | | 8 | −0.253 | | | |

0.0214* = 0.0114 + 0.0100

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000009 | −0.000018 | 0.000011 | −0.000087 | −0.000493 | 0.35 | −1.37% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T1,7}'$ |
| 100 | 0.00612 | −0.00486 | 0.01129 | −0.00136 | 0.01265 | −0.000457 | −0.000309 |
| 70 | 0.00104 | −0.00156 | 0.00093 | −0.00281 | 0.00374 | −0.000247 | −0.000158 |

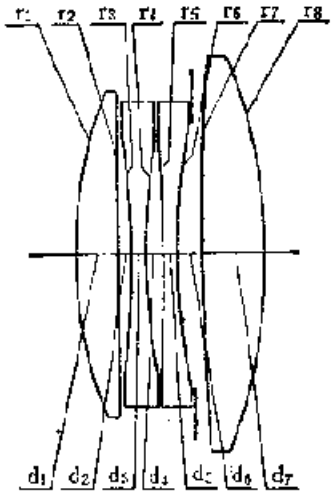


编号：05-04-034

# 塑料及玻璃的袖珍四片型物镜

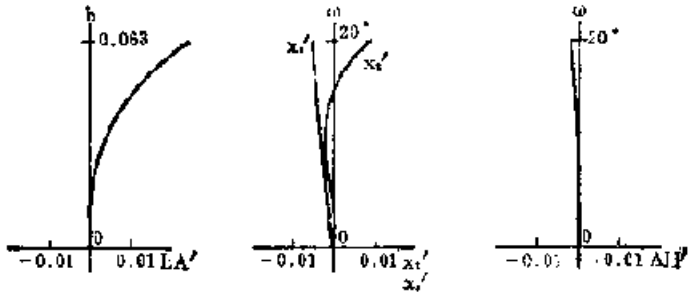
E.F.L＝1.037　　B.F.L＝1　　FNo.＝8.2　　F.A.＝±20°**

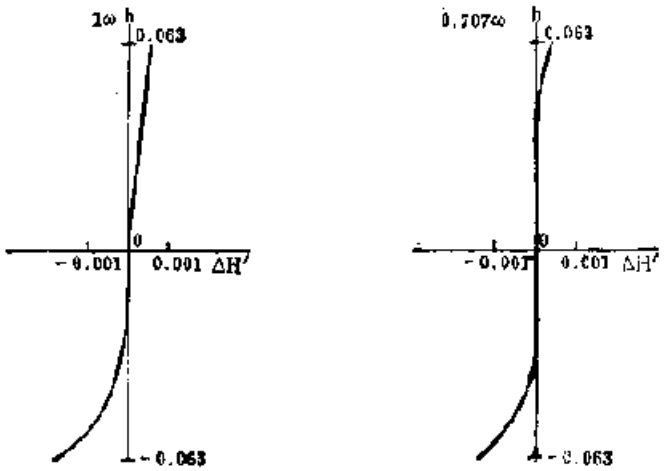



| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.213 | 0.0207 | 1.678 | 55.2 | 5 | −0.701 | 0.0072 | 1.592 | 30.8 |
| 2 | ∞ | 0.0050 | | | 6 | 0.352 | 0.0113* | | |
| 3 | −0.500 | 0.0072 | 1.497 | 57.2 | 7 | 1.179 | 0.0311 | 1.615 | 51.2 |
| 4 | 0.277 | 0.0093 | | | 8 | −0.270 | | | |

0.0113* = 0.0060 + 0.0053

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.000089 | −0.0000002 | −0.0000003 | −0.0000903 | −0.0001243 | 0.379 | −0.38% |
| h 或 ω % | T.A′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K'_{F1}$ | $K'_{0.7}$ |
| 100 | 0.02402 | −0.00143 | 0.00900 | −0.00473 | 0.01373 | −0.000654 | −0.000034 |
| 70 | 0.00871 | −0.00044 | −0.00157 | −0.00451 | 0.00314 | −0.000448 | −0.000077 |

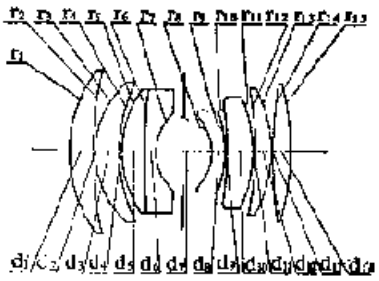


编号：05-04-035

# 精 密 透 镜 系 统

E. F. L＝183.8　　B. F. L＝51.32　　FNo. ＝ 4　　F. A. ＝ ±15°**



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 103.13 | 18.20 | 1.69978 | 55.62 | 9 | －90.40 | 0.80 | | |
| 2 | 251.23 | 0.30 | | | 10 | －265.79 | 20.00 | 1.71615 | 53.93 |
| 3 | 71.41 | 18.20 | 1.69978 | 55.62 | 11 | －109.94 | 1.00 | | |
| 4 | 121.60 | 0.30 | | | 12 | －310.99 | 13.80 | 1.71615 | 53.93 |
| 5 | 82.29 | 18.20 | 1.69978 | 55.62 | 13 | －104.46 | 1.00 | | |
| 6 | 785.23 | 7.50 | 1.74618 | 28.29 | 14 | 386.94 | 13.80 | 1.71615 | 53.93 |
| 7 | 39.39 | 43.16* | | | 15 | －198.77 | | | |
| 8 | －38.48 | 10.00 | 1.60922 | 39.57 | | | | | |

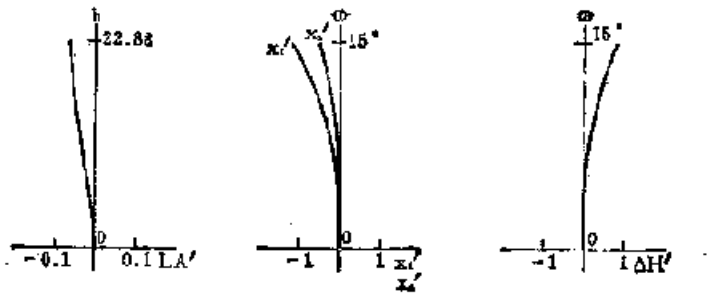
43.16* ＝21.59＋21.59

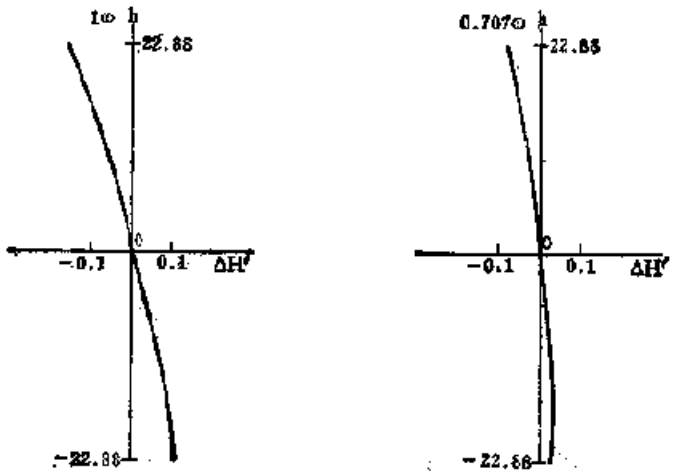
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.00429 | －0.00115 | －0.00580 | －0.00964 | 0.17778 | 49.3 | 1.6% |

| h 或ω% | LA′ | AH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | －0.0605 | 0.8003 | －1.1908 | －0.4939 | －0.6939 | －0.02774 | －0.00707 |
| 70 | －0.0506 | 0.2656 | －0.4496 | －0.2257 | －0.2239 | －0.02791 | －0.00714 |

注：1. M＝0.05*；

2. 以上象差值是按 l ＝ －∞ 计算的。

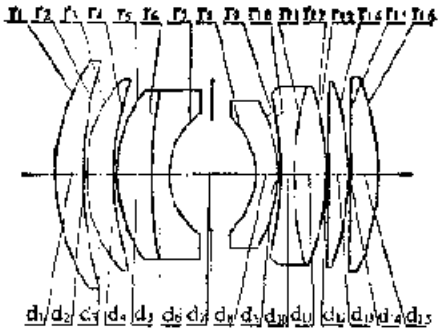


编号：05-04-036

# 精 密 透 镜 系 统

E. F. L＝180　　B. F. L＝59.6　　FNo. ＝ 4　　F. A. ＝ ±15°*



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 102.66 | 13.80 | 1.71615 | 53.98 | 9 | −73.86 | 0.70 | | |
| 2 | 180.27 | 0.70 | | | 10 | −181.15 | 6.80 | 1.74795 | 44.78 |
| 3 | 70.37 | 14.60 | 1.69978 | 55.62 | 11 | 159.36 | 15.50 | 1.62540 | 57.06 |
| 4 | 140.85 | 9.70 | | | 12 | −129.29 | 0.70 | | |
| 5 | 70.34 | 17.50 | 1.69560 | 53.34 | 13 | ∞ | 10.00 | 1.71615 | 53.98 |
| 6 | 333.68 | 8.00 | 1.78429 | 28.46 | 14 | −142.28 | 0.70 | | |
| 7 | 36.28 | 42.06* | | | 15 | ∞ | 13.50 | 1.71615 | 53.98 |
| 8 | −38.79 | 11.20 | 1.74795 | 44.78 | 16 | −124.67 | | | |

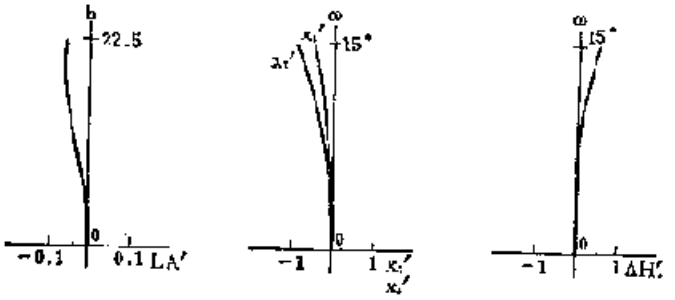
42.06* = 21.03 + 21.03

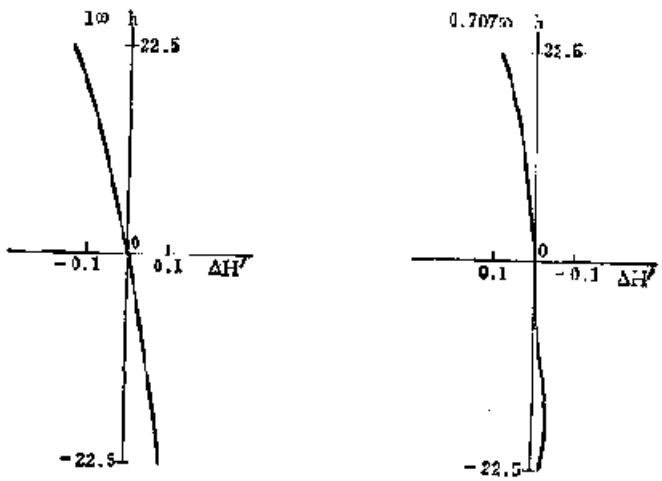
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00439 | −0.00079 | −0.00498 | −0.00944 | 0.12765 | 48.3 | 1.14% |

| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T_1}'$ | $K_{T_{0.7}}'$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.0585 | 0.5524 | −0.9343 | −0.3039 | −0.5054 | −0.02489 | −0.00832 |
| 70 | −0.0508 | 0.1874 | −0.3878 | −0.2056 | −0.1822 | −0.02531 | −0.00727 |

注：1. M = 0.05^

2. 以上象差值是按 l = ∞ 计算的。

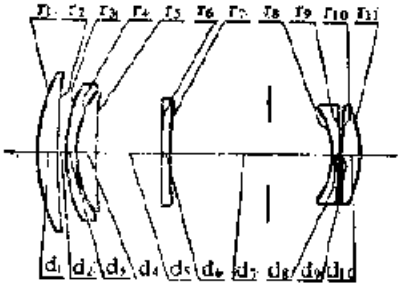


编号：05-04-037

# 小倍率远距离照相镜头

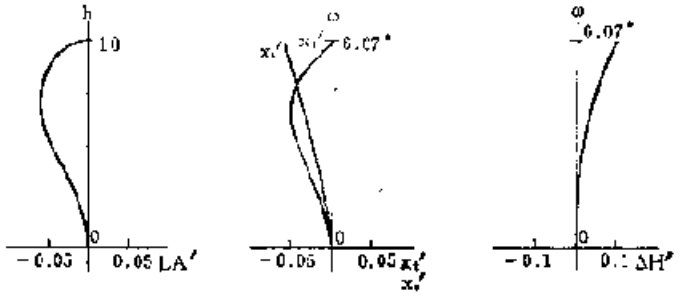
E. F. L＝100　　B. F. L＝25.5　　FNo. ＝5　　F. A. ＝±6.07°

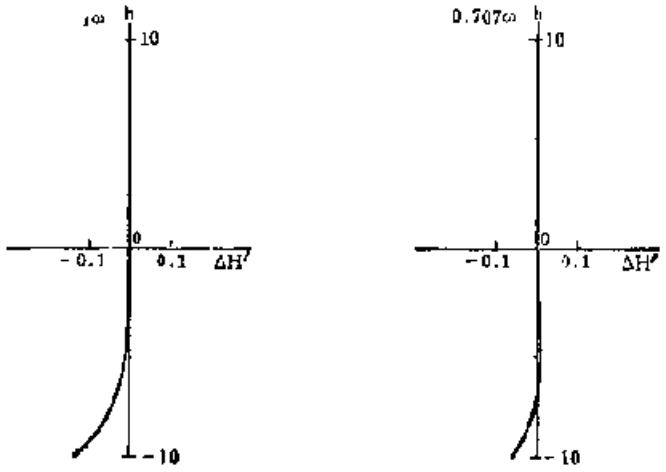



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 27.37 | 3.0 | 1.4875 | 70.2 | 7 | 59.37 | 25.0* | | |
| 2 | 87.09 | 1.5 | | | 8 | −12.35 | 1.0 | 1.7130 | 54.0 |
| 3 | 24.47 | 1.5 | 1.7283 | 28.5 | 9 | −83.24 | 0.5 | | |
| 4 | 15.93 | 3.0 | 1.5014 | 56.4 | 10 | 355.59 | 2.5 | 1.5927 | 35.5 |
| 5 | 76.67 | 10.0 | | | 11 | −18.27 | | | |
| 6 | ∞ | 1.5 | 1.7440 | 44.8 | | | | | |

25.0* = 15.0 + 10.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00448 | 0.00254 | −0.00128 | −0.00037 | 0.02361 | 10.6 | 1% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.0045 | 0.1085 | 0.0026 | −0.0589 | 0.0615 | −0.07230 | −0.02006 |
| 70 | −0.0609 | 0.0402 | −0.0511 | 0.0354 | −0.0157 | −0.03072 | −0.00429 |

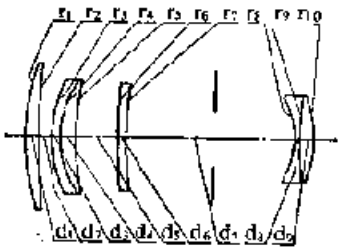


编号：05-04-038

# 小倍率远距离照相镜头

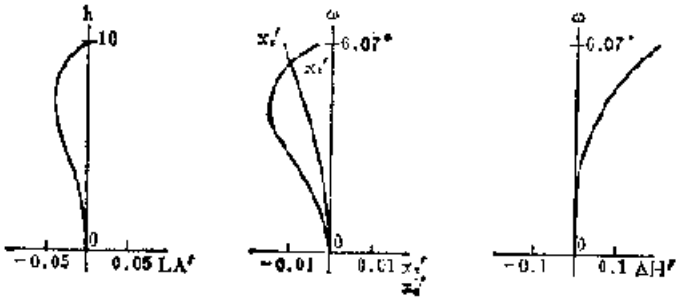
E.F.L＝100.2　　B.F.L＝24.97　　FNo.－5　　F.A.＝±6.07°

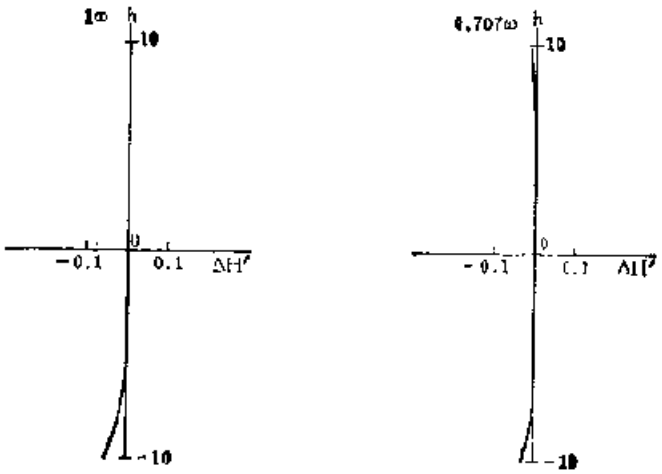


| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 38.54 | 2.5 | 1.4875 | 70.2 | 5 | 124.83 | 1.5 | 1.7138 | 37.8 |
| 2 | 150.27 | 2.5 | | | 7 | 74.01 | 31.0* | | |
| 3 | 24.61 | 1.5 | 1.7400 | 28.3 | 8 | －14.38 | 1.0 | 1.7130 | 54.0 |
| 4 | 17.85 | 3.0 | 1.5163 | 64.2 | 9 | 80.98 | 2.5 | 1.6364 | 35.4 |
| 5 | 50.55 | 7.6 | | | 10 | －20.18 | | | |

21.0*－16.0＋15.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.00321 | 0.00037 | －0.00048 | 0.00026 | 0.03509 | 10.6 | 1.9% |
| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.0032 | 0.2038 | －0.0032 | －0.0124 | 0.0092 | －0.02960 | －0.00750 |
| 70 | －0.0423 | 0.0708 | －0.0161 | －0.0058 | －0.0103 | －0.01655 | －0.00215 |

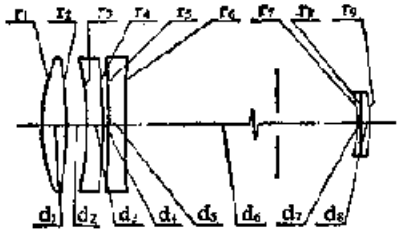


编号：05-04-039

# 远 距 离 照 相 镜 头

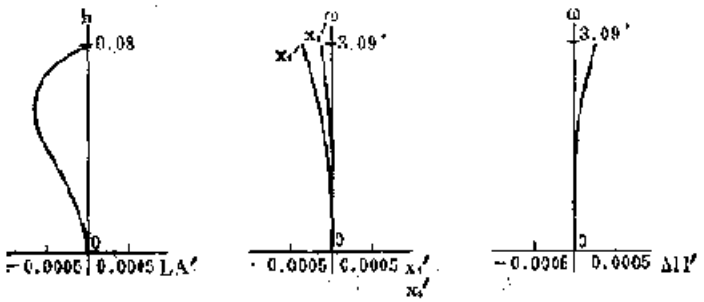
E. F. L＝1.0　　B. F. L＝0.2697　　FNo. ＝6.3　　F. A. ＝±3.09°

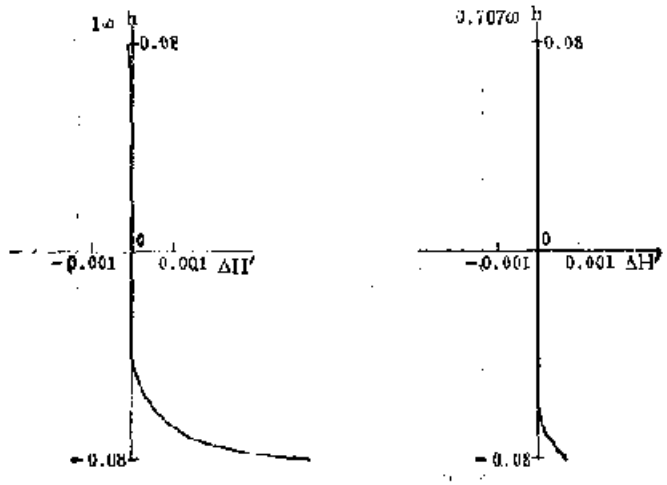



| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.22378 | 0.03022 | 1.48749 | 70.1 | 6 | 3.27585 | 0.35573* | | |
| 2 | −0.40612 | 0.02808 | | | 7 | −0.13307 | 0.00915 | 1.65160 | 58.6 |
| 3 | −0.31658 | 0.01900 | 1.74950 | 35.2 | 8 | 1.13748 | 0.01303 | 1.80340 | 38.0 |
| 4 | −0.88263 | 0.00544 | | | 9 | −0.20273 | | | |
| 5 | −1.64903 | 0.02164 | 1.59270 | 35.6 | | | | | |

0.35573* = 0.25573 + 0.10000

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000034 | 0.000011 | −0.000002 | 0.000001 | 0.000042 | 0.054 | 0.5% |
| h 或ω% | TA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t - x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.00002 | 0.00026 | −0.00033 | −0.00007 | −0.00026 | 0.002196 | 0.000145 |
| 70 | −0.00066 | 0.00009 | −0.00016 | −0.00004 | −0.00012 | 0.000242 | −0.000008 |

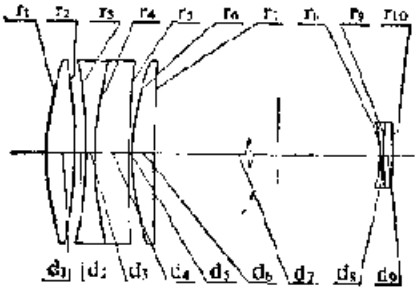


编号：05-01-040

# 消色差远距离物镜

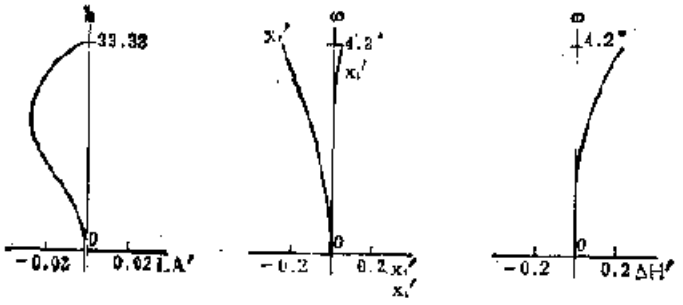
E. F. L＝300　　B. F. L＝70　　FNo. ＝4.5　　F. A. ＝±4.2°

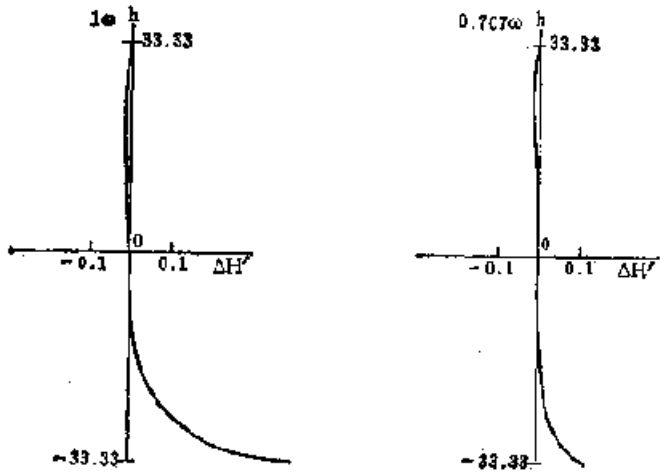



| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 106.00 | 11.0 | 1.48605 | 81.5 | 6 | 95.00 | 7.7 | 1.48605 | 81.5 |
| 2 | −151.00 | 4.0 | | | 7 | 878.60 | 119.3* | | |
| 3 | −144.00 | 3.0 | 1.74400 | 44.9 | 8 | −43.00 | 1.0 | 1.62041 | 60.3 |
| 4 | 130.00 | 12.0 | 1.63930 | 45.9 | 9 | 150.00 | 3.5 | 1.62004 | 36.3 |
| 5 | 650.00 | 1.0 | | | 10 | −104.82 | | | |

119.3* − 69.0 + 50.3

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00385 | 0.00017 | −0.00391 | 0.00468 | 0.04798 | 21.9 | 1% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | −0.00099 | 0.2201 | −0.2563 | 0.0252 | −0.2815 | 0.19537 | 0.01669 |
| 70 | −0.02847 | 0.0771 | −0.1364 | 0.0134 | −0.1478 | 0.06035 | 0.00306 |

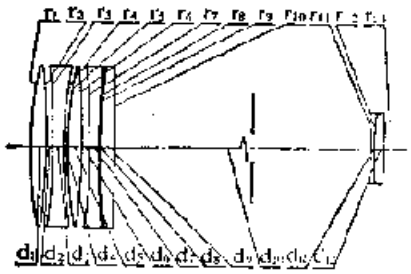


编号：05-04-041

# 消 色 差 远 距 离 物 镜

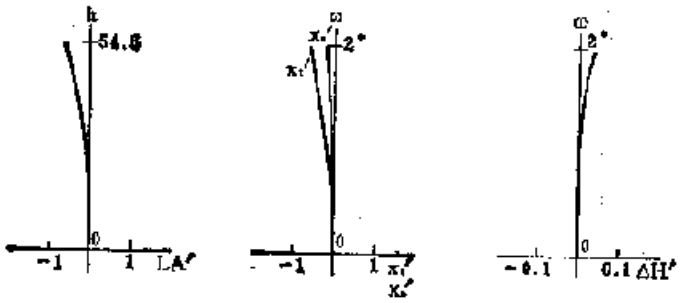
E.F.L=1144.6　　B.F.L=328.7　　FNo.=16.5　　F.A.=±2°

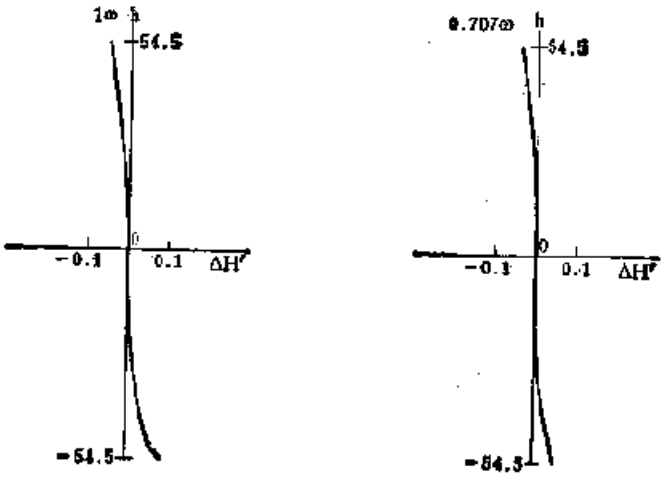


| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 310.00 | 11.0 | 1.61405 | 55.1 | 8 | 841.00 | 1.0 | | |
| 2 | −525.00 | 5.0 | | | 9 | 700.00 | 16.0 | 1.62374 | 47.0 |
| 3 | −530.00 | 7.5 | 1.61150 | 44.3 | 10 | −2386.10 | 533.0* | | |
| 4 | 313.00 | 4.0 | | | 11 | −190.00 | 2.0 | 1.51680 | 64.2 |
| 5 | 341.30 | 10.0 | 1.48806 | 83.5 | 12 | 310.00 | 7.0 | 1.62374 | 47.0 |
| 6 | 557.00 | 7.0 | | | 13 | −472.63 | | | |
| 7 | −413.00 | 7.5 | 1.71300 | 53.9 | | | | | |

533.0* = 280.0 + 253.0

| | $\Sigma S_I$ | $\Sigma S_{II}$ | $\Sigma S_{III}$ | $\Sigma S_{IV}$ | $\Sigma S_V$ | H′ | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00202 | −0.00013 | −0.00076 | −0.00017 | 0.00359 | 40.1 | 0.09% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{To.r}'$ |
| 100 | −0.5739 | 0.0377 | −0.5737 | −0.2136 | −0.3601 | 0.01674 | 0.00322 |
| 70 | −0.2504 | 0.0133 | −0.2794 | −0.1052 | −0.1742 | 0.00843 | 0.00117 |

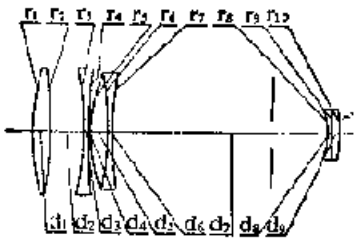


编号：05-04-042

# 小倍率望远镜式远摄透镜系统

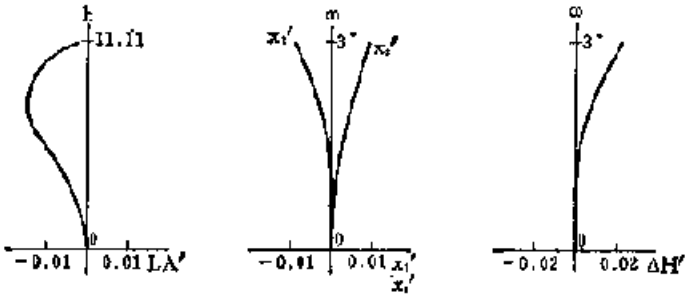
E. F. L＝100　　B. F. L＝25.05　　FNo. ＝4.5　　F. A. ＝＋3°

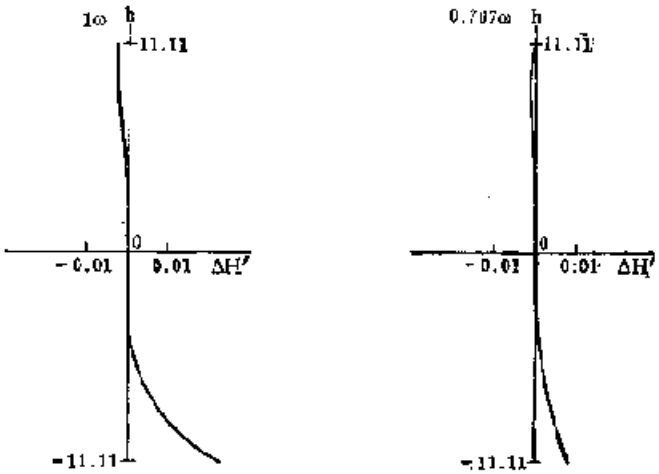


| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 44.199 | 3.00 | 1.48749 | 70.2 | 6 | −59.866 | 1.00 | 1.61340 | 43.8 |
| 2 | −79.671 | 6.25 | | | 7 | 60.935 | 38.50* | | |
| 3 | −57.444 | 1.00 | 1.70154 | 41.1 | 8 | −14.064 | 0.75 | 1.67790 | 55.3 |
| 4 | 158.310 | 0.20 | | | 9 | 44.298 | 1.25 | 1.72342 | 37.9 |
| 5 | 20.442 | 3.00 | 1.61800 | 63.4 | 10 | −24.649 | | | |

38.50* − 28.50 + 10.00

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.001445 | 0.000017 | −0.000163 | 0.000430 | 0.000025 | 5.2 | 0.4% |
| h 或 ω % | LA′ | AH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T.}'$ | $K_{Tc.7}'$ |
| 100 | −0.0012 | 0.0229 | −0.0091 | 0.0091 | −0.0182 | 0.01088 | 0.00229 |
| 70 | −0.0151 | 0.0080 | −0.0026 | 0.0050 | −0.0076 | 0.00350 | 0.00061 |

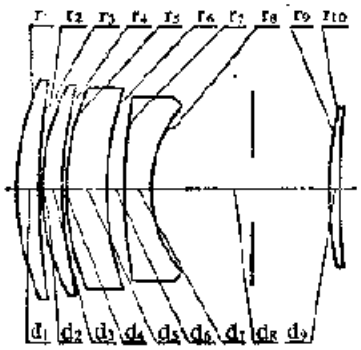


编号：05-04-043

# 大孔径长焦距透镜系统

E. F. L＝1.0　　B. F. L＝0.435　　FNo. ＝2.8　　F. A. ＝±9°

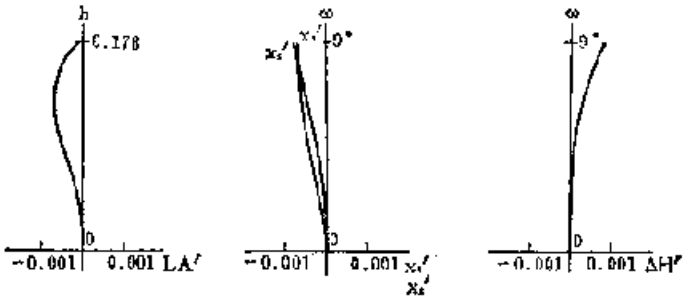


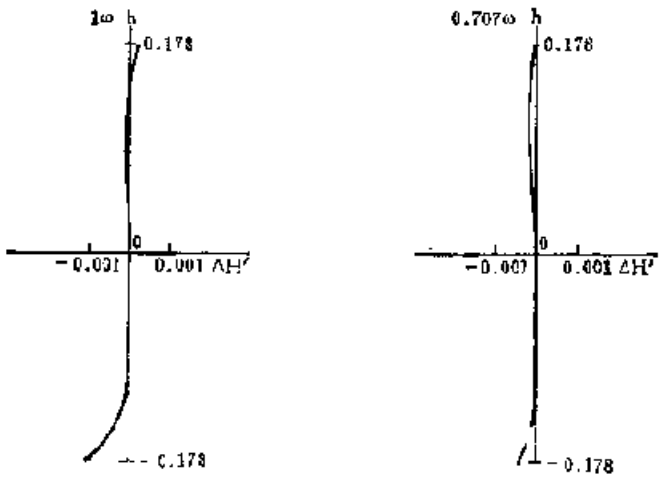

| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.3847 | 0.0392 | 1.63854 | 55.38 | 6 | 0.4620 | 0.0260 | | |
| 2 | 1.5003 | 0.0007 | | | 7 | 0.9685 | 0.0409 | 1.78470 | 26.22 |
| 3 | 0.3465 | 0.0317 | 1.61700 | 62.79 | 8 | 0.1957 | 0.2758* | | |
| 4 | 0.5969 | 0.0025 | | | 9 | 0.6435 | 0.0150 | 1.80518 | 25.43 |
| 5 | 0.3748 | 0.0638 | 1.70154 | 41.10 | 10 | 1.8672 | | | |

0.2758* = 0.1558 + 0.1200

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000163 | 0.000027 | −0.000015 | −0.000066 | 0.000365 | 0.158 | 0.51% |

| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.000076 | 0.000811 | −0.000696 | −0.000759 | 0.000063 | −0.000379 | −0.000054 |
| 70 | −0.000717 | 0.000328 | −0.000584 | −0.000511 | −0.000073 | −0.000172 | −0.000098 |

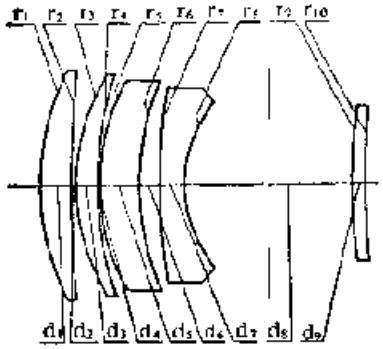


编号：05-04-044

# 大孔径长焦距透镜系统

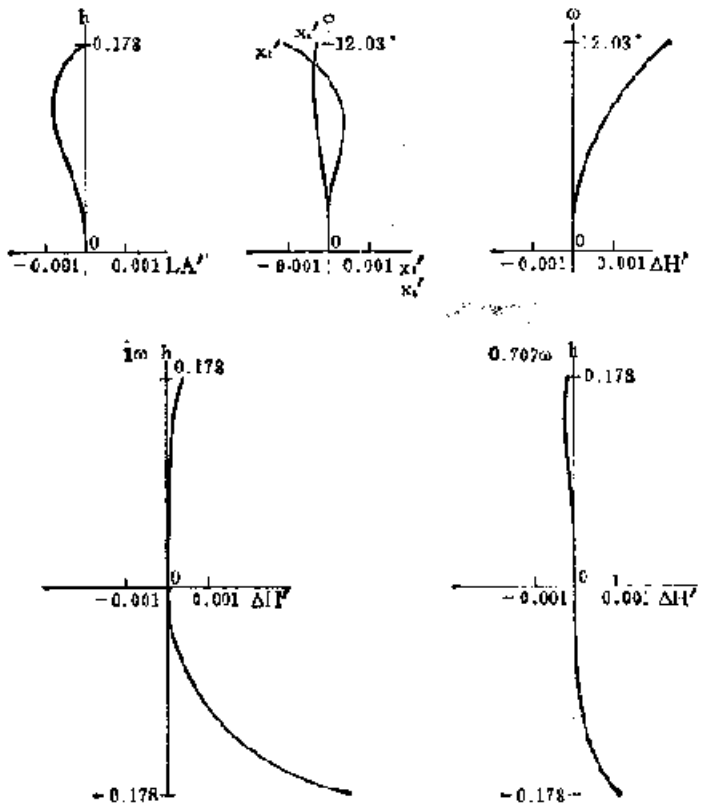
E.F.L=1.0　　B.F.L=0.429　　FNo.=2.8　　F.A.=±12.03°



| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.4011 | 0.0472 | 1.58913 | 61.11 | 6 | 0.4159 | 0.0261 | | |
| 2 | 2.3231 | 0.0042 | | | 7 | 0.8450 | 0.0389 | 1.78470 | 26.22 |
| 3 | 0.3213 | 0.0336 | 1.56873 | 63.16 | 8 | 0.1960 | 0.2578* | | |
| 4 | 0.5316 | 0.0025 | | | 9 | 0.6486 | 0.0255 | 1.78470 | 26.22 |
| 5 | 0.3406 | 0.0639 | 1.70154 | 41.10 | 10 | 1.7995 | | | |

0.2578* = 0.1300 + 0.1278

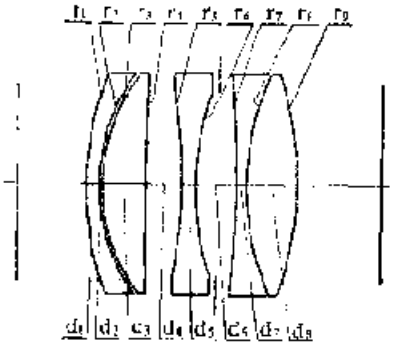
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000175 | −0.000093 | 0.000090 | −0.000137 | 0.001077 | 0.213 | 1.1% |
| 1或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K'_{T1}$ | $K'_{10.7}$ |
| 100 | −0.000045 | 0.002425 | −0.001137 | −0.000264 | 0.000873 | 0.002505 | 0.000869 |
| 70 | −0.000744 | 0.000989 | 0.000377 | −0.000284 | 0.000661 | 0.000509 | 0.000107 |



编号, 05-04-045

# 五 片 型 重 显 物 镜

E. F. L＝91　　B. F. L＝79.97　　FNo. ＝5.6　　F. A. ＝±20°**



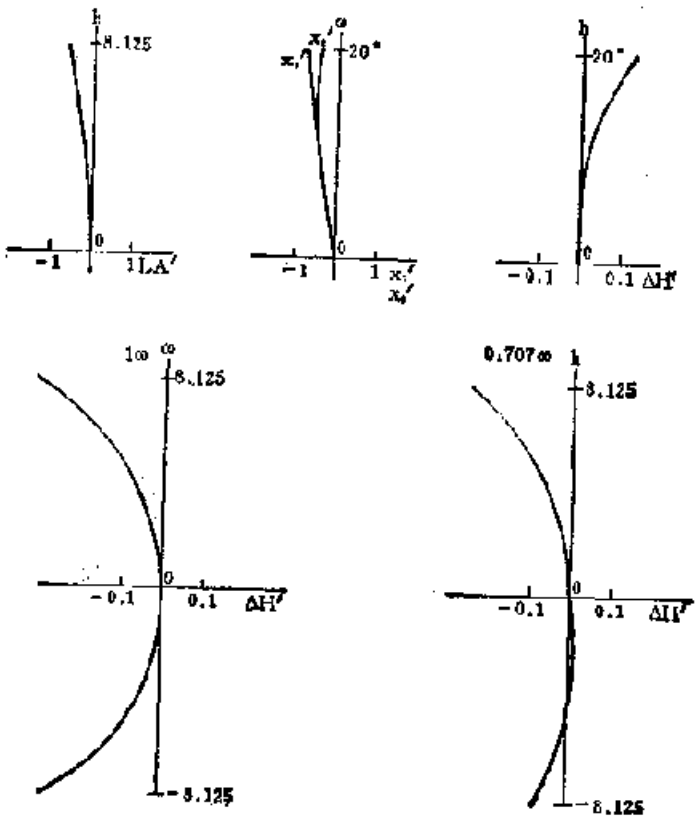
| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.246 | 1.36 | 1.59551 | 39.2 | 6 | 29.478 | 3.90* | | |
| 2 | 19.257 | 0.15 | | | 7 | 144.764 | 1.25 | 1.54869 | 45.4 |
| 3 | 19.257 | 4.49 | 1.65844 | 50.8 | 8 | 27.948 | 5.15 | 1.65844 | 50.8 |
| 4 | 1837.160 | 3.75 | | | 9 | −36.259 | | | |
| 5 | −48.439 | 1.47 | 1.57845 | 41.7 | | | | | |

3.90* = 2.00 + 1.90

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.01398 | −0.00721 | −0.00148 | −0.02039 | 0.02197 | 33.2 | 0.4% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.6542 | 0.1358 | −0.3712 | −0.7206 | 0.3494 | −0.3132 | −0.1308 |
| 70 | −0.3871 | 0.0466 | −0.5207 | −0.5568 | 0.0361 | −0.1690 | −0.0704 |

注：1. M＝1*

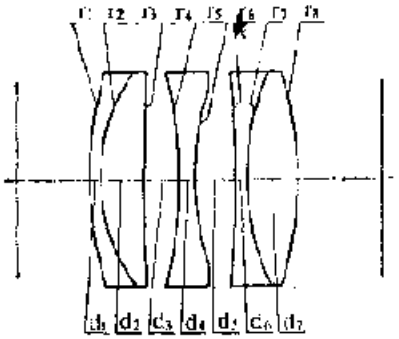
2. 以上象差值是按 l＝−∞计算的。



编号：05-04-046

# 五 片 型 重 显 物 镜

E.F.L＝100.8　　B.F.L＝90.67　　FNo.＝5.6　　F.A.＝±20°**



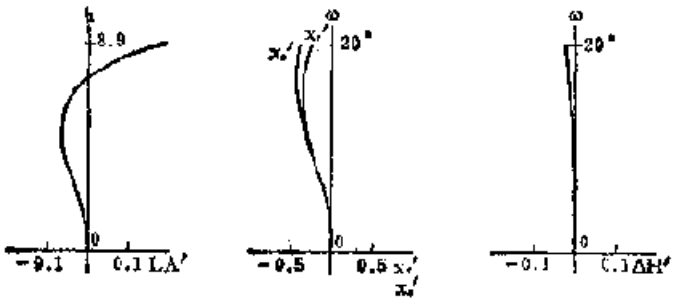

| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 98.769 | 1.10 | 1.58551 | 39.2 | 5 | 29.478 | 4.23 | | |
| 2 | 19.080 | 4.41 | 1.65844 | 50.8 | 6 | −144.764 | 1.25 | 1.54869 | 45.4 |
| 3 | 1014.670 | 3.68* | | | 7 | 27.948 | 5.15 | 1.65844 | 50.8 |
| 4 | −48.430 | 1.47 | 1.57845 | 41.7 | 8 | −36.259 | | | |

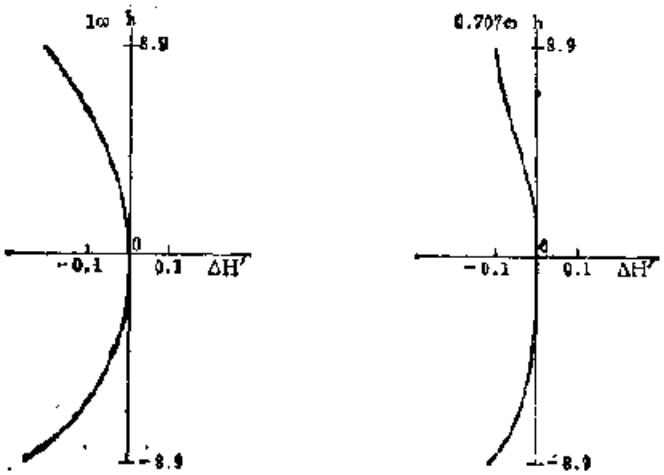
3.68* = 2.13 + 1.55

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | $HI$ | $QP(1\omega)$ |
|---|---|---|---|---|---|---|---|
| | −0.00605 | −0.00561 | 0.00035 | −0.01808 | −0.00471 | 36.6 | −0.06% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}'$ |
| 100 | 0.1981 | −0.0224 | −0.2553 | −0.4114 | 0.1561 | −0.2264 | −0.1008 |
| 70 | −0.0629 | −0.0088 | −0.3307 | −0.4107 | 0.0800 | −0.1063 | −0.0500 |

注：1.M＝1*₃

2.以上象差值是按 $\frac{1}{l}=-\infty$ 计算的。

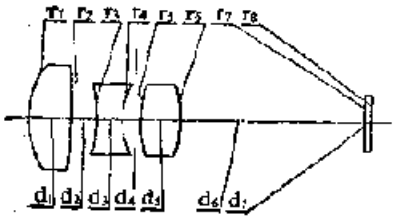


编号：05-04-047

# 低折射率玻璃材料的三片型工业电视镜头

E.F.L=103.3　　B.F.L=0　　FNo.=4　　F.A.=±4.6°

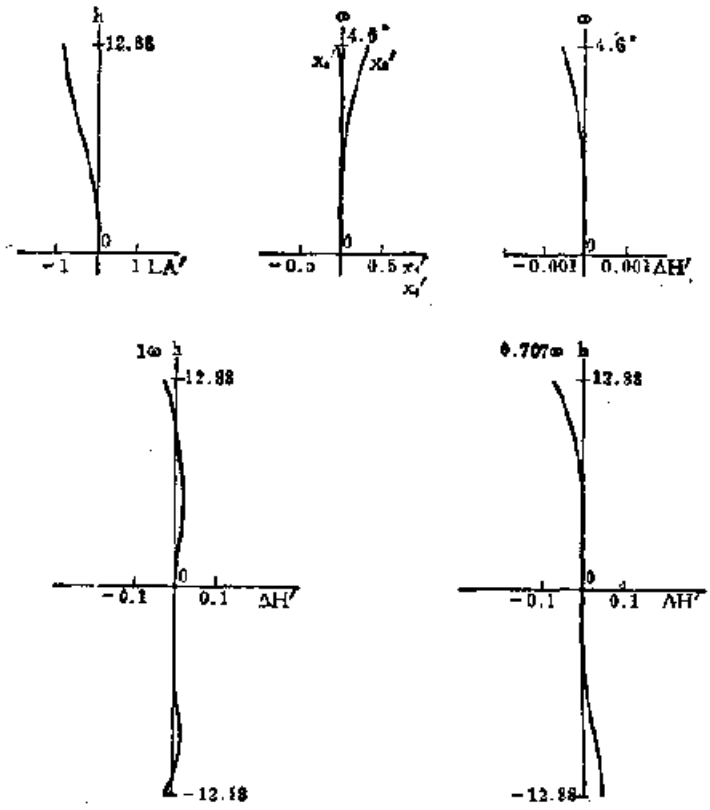



| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.727 | 15.000 | 1.5147 | 60.6 | 5 | 54.971 | 14.000 | 1.5163 | 64.1 |
| 2 | 203.125 | 8.800 | | | 6 | -39.447 | 66.394 | | |
| 3 | -46.696 | 10.000 | 1.6259 | 35.3 | 7 | ∞ | 2.600 | 1.5163 | 64.1 |
| 4 | 28.080 | 6.800* | | | 8 | ∞ | | | |

6.800* = 4.000 + 2.800

注：第四片为靶面玻璃。

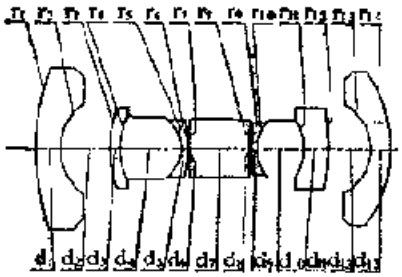
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1m) |
|---|---|---|---|---|---|---|---|
| | -0.04120 | 0.00433 | 0.00492 | -0.00536 | -0.00018 | 8.3 | -0.007% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T_1}$ | $K_{T_0.7}$ |
| 100 | -0.8459 | -0.0006 | 0.2964 | -0.0131 | 0.3095 | -0.02958 | 0.00704 |
| 70 | -0.5610 | -0.0002 | 0.1502 | -0.0067 | 0.1570 | -0.01566 | 0.00698 |



编号：05-04-048

# 广角袖珍投影透镜系统

E.F.L＝99.6　　B.F.L＝28.5　　FNo.＝4　　F.A.＝±45°



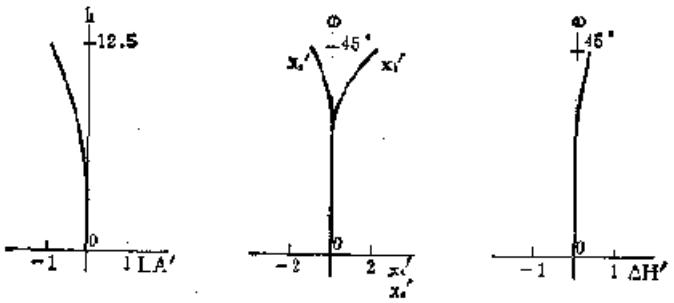
| 序号 | r | d | $n_D$ | ν | 序号 | r | d | $n_D$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 190.380 | 17.54 | 1.522 | 59.5 | 8 | ∞ | 9.07 | | |
| 2 | 41.627 | 36.48 | | | 9 | 660.813 | 4.21 | 1.523 | 51.5 |
| 3 | 80.936 | 7.01 | 1.788 | 50.5 | 10 | 35.054 | 26.85 | 1.658 | 50.5 |
| 4 | 44.987 | 45.86 | 1.592 | 68.5 | 11 | −42.946 | 18.24 | 1.784 | 26.5 |
| 5 | −37.194 | 4.91 | 1.523 | 51.5 | 12 | −157.027 | 30.87 | | |
| 6 | −103.752 | 0.07 | | | 13 | −37.688 | 14.03 | 1.541 | 47.5 |
| 7 | ∞ | 44.55* | 1.800 | 50.0 | 14 | −103.401 | | | |

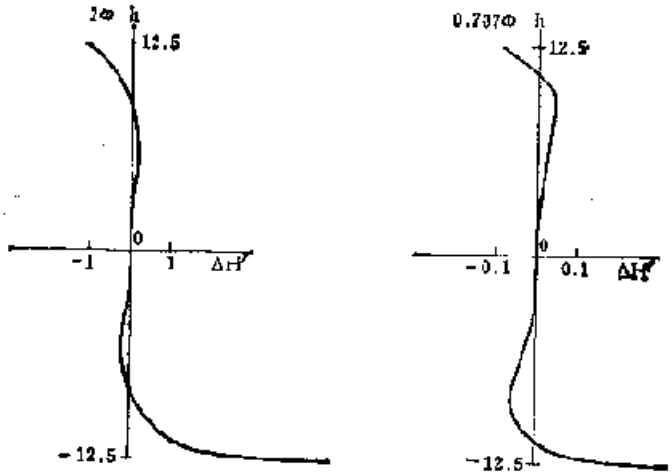
44.55* ~ 33.33 + 22.22

注：光栏为等效光栏。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | OP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0228 | −0.0112 | −0.0423 | 0.0529 | 0.0310 | 99.5 | 0.3% |

| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'$ $x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.936 | 0.305 | 2.119 | −1.019 | 3.138 | 1.9214 | 0.0123 |
| 70 | −0.405 | 0.117 | 0.136 | 0.033 | 0.103 | 0.1317 | 0.0136 |

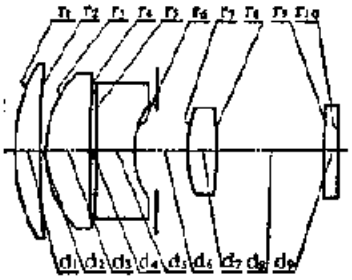


编号：05-04-049

# 低折射率玻璃材料的四片型工业电视镜头

E.F.L=51.11　　B.F.L=0　　FNo.=1.75　　F.A.=±9.2°

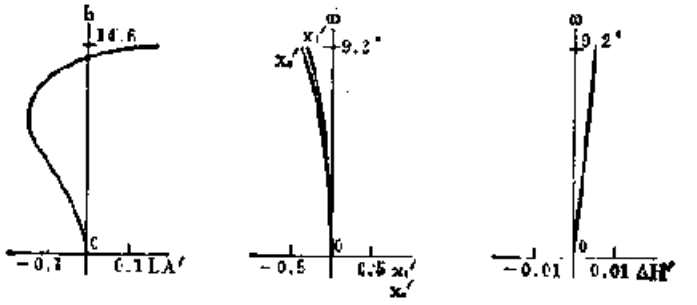


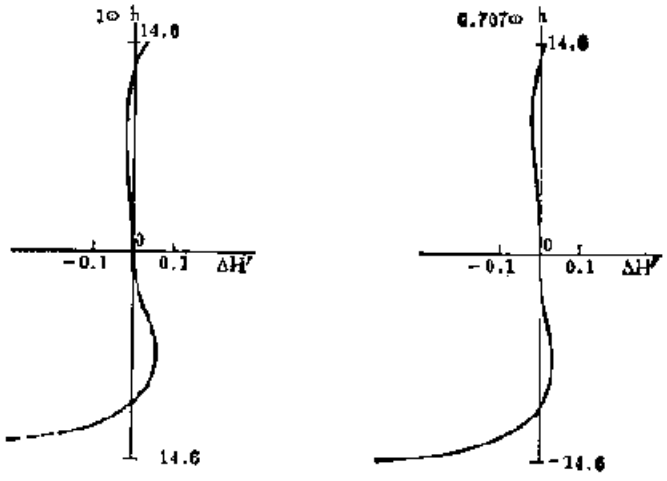

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.707 | 5.000 | 1.5163 | 64.1 | 6 | 13.614 | 10.000* | | |
| 2 | 254.000 | 0.800 | | | 7 | 26.730 | 5.000 | 1.5147 | 60.6 |
| 3 | 20.720 | 8.200 | 1.5163 | 64.1 | 8 | −74.992 | 19.996 | | |
| 4 | 440.321 | 1.000 | | | 9 | ∞ | 2.600 | 1.5163 | 64.1 |
| 5 | −299.200 | 7.000 | 1.6725 | 32.2 | 10 | ∞ | | | |

10.000* = 4.000 + 6.000

注：第五片为靶面玻璃。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1⊙) |
|---|---|---|---|---|---|---|---|
| | −0.0376 | 0.0298 | 0.0051 | −0.0600 | 0.0100 | 8.24 | 0.05% |
| h 或 ω% | LA′ | ΔH′ | $x_1'$ | $x_4'$ | $x_1'-x_4'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.1850 | 0.0045 | −0.2875 | −0.3161 | 0.0286 | −0.3425 | 0.0028 |
| 70 | −0.1536 | 0.0039 | −0.1322 | −0.1616 | 0.0294 | −0.1897 | 0.0073 |

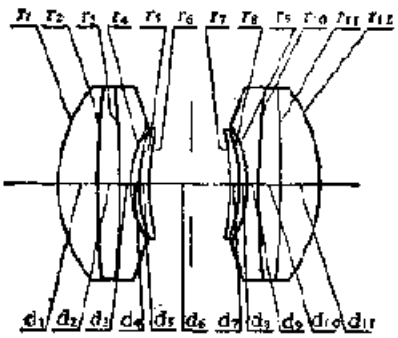


编号：05-04-050

# 复印机聚焦透镜系统

E.F.L＝1　　B.F.L＝0.782　　FNo.－4　　F.A.＝±30°**



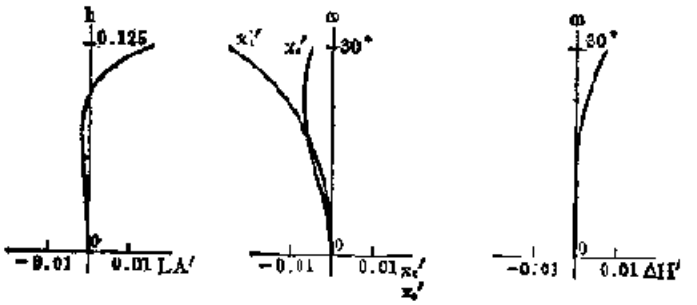
| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.23987 | 0.06282 | 1.60311 | 60.5 | 7 | －0.40209 | 0.01571 | 1.56873 | 63.1 |
| 2 | 1.72775 | 0.03143 | 1.60562 | 43.7 | 8 | －0.25084 | 0.01178 | | |
| 3 | －1.41361 | 0.01728 | 1.54814 | 45.7 | 9 | －0.17192 | 0.01728 | 1.54814 | 45.7 |
| 4 | 0.17192 | 0.01178 | | | 10 | 1.41361 | 0.03143 | 1.60562 | 43.7 |
| 5 | 0.25084 | 0.01571 | 1.56873 | 63.1 | 11 | －1.72775 | 0.06282 | 1.60311 | 60.5 |
| 6 | 0.40209 | 0.12375* | | | 12 | －0.23987 | | | |

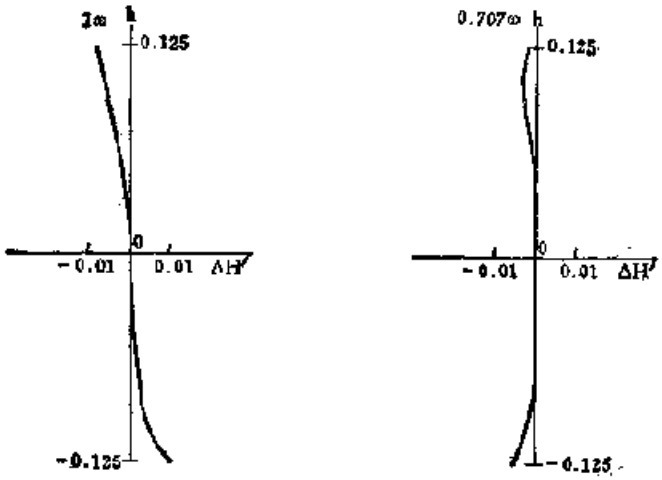
0.123750* = 0.061875 + 0.061875

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.000411 | －0.000444 | 0.000075 | －0.000542 | 0.001057 | 0.58 | 1.24% |

| h或ω% | LA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.01500 | 0.00715 | －0.02547 | －0.00486 | －0.02151 | 0.000868 | －0.001058 |
| 70 | －0.00098 | 0.00204 | －0.00901 | －0.00601 | －0.00300 | －0.003262 | －0.001603 |

注：以上象差值是按 l ＝ －∞计算的。

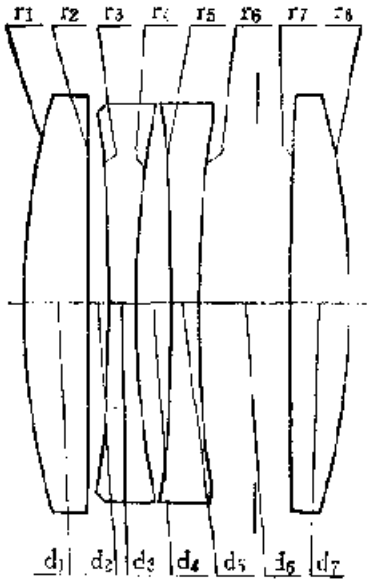


编号：05-04-051

# 袖珍四片型物镜

E.F.L＝0.999　　B.F.L＝0.997　　FNo.＝8　　F.A.＝±25°**

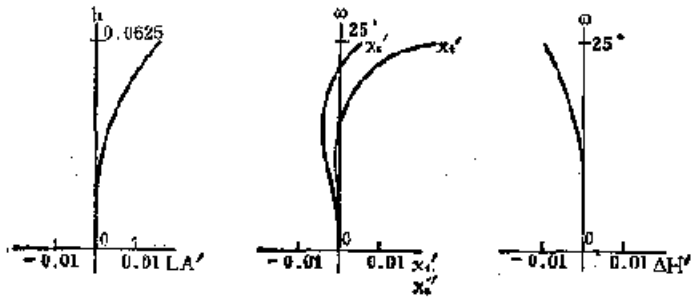


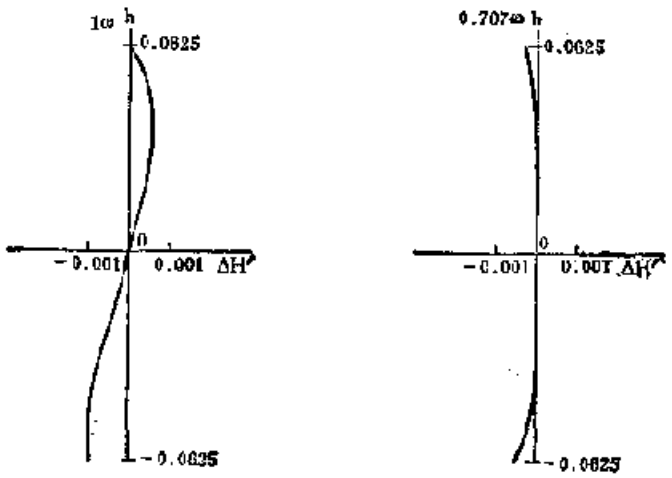

| 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|
| 1 | 0.2182 | 0.0188 | 1.678 | 55.2 |
| 2 | ∞ | 0.0057～0.0597 | | |
| 3 | －0.5772 | 0.0079 | 1.511 | 60.4 |
| 4 | 0.3267 | 0.0105 | | |
| 5 | －0.5302 | 0.0079 | 1.626 | 35.7 |
| 6 | 0.3385 | 0.0270* | | |
| 7 | 1.1217 | 0.0167 | 1.651 | 55.9 |
| 8 | －0.2664 | | | |

0.0270* = 0.0170 + 0.0100

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.000045 | －0.000020 | 0.000011 | －0.000038 | －0.000786 | 0.466 | －2.1% |
| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | 0.01513 | －0.00976 | 0.02415 | 0.00429 | 0.01986 | －0.000453 | －0.000158 |
| 70 | 0.00490 | －0.00290 | 0.00208 | －0.00379 | 0.00587 | －0.000411 | －0.000142 |

注：以上象差值是按$d_2$＝0.0057计算的。

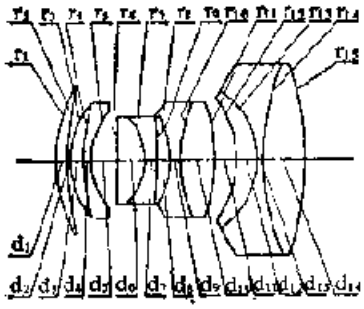


编号：05-04-052

# 五 组 元 物 镜

E.F.L＝100.6　　B.F.L＝48.2　　FN0.＝4.02　　F.A.＝±30°**

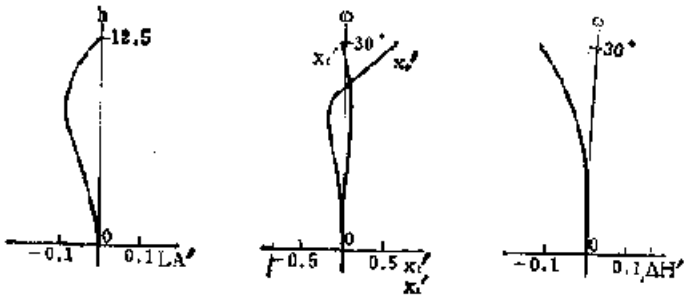


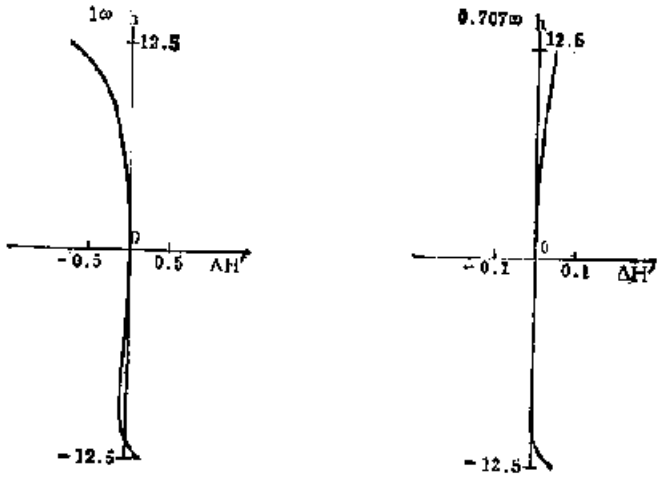
| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 37.89 | 3.18 | 1.63882 | 57.4 | 9 | −20.61 | 3.59 | 1.67340 | 34.3 |
| 2 | 68.47 | 0.10 | | | 10 | 34.77 | 14.80 | 1.74400 | 50.8 |
| 3 | 21.43 | 4.32 | 1.63100 | 54.8 | 11 | −40.67 | 5.15 | | |
| 4 | 51.19 | 1.63 | 1.68065 | 37.4 | 12 | −24.68 | 4.95 | 1.69100 | 54.7 |
| 5 | 18.29 | 6.65* | | | 13 | −20.14 | 1.67 | 1.53113 | 62.2 |
| 6 | −2070.00 | 5.20 | 1.59920 | 45.1 | 14 | 50.67 | 10.20 | 1.46450 | 65.8 |
| 7 | −14.55 | 2.90 | 1.59197 | 48.5 | 15 | −72.85 | | | |
| 8 | −180.30 | 2.97 | 1.47069 | 67.3 | | | | | |

6.65* = 6.55 + 0.10

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0113 | 0.0034 | 0.0142 | −0.0456 | −0.0109 | 58 | −0.240% |

| h 或 ω % | LA′ | AH′ | $x_t$ | $x_s'$ | $x_t'-x_s'$ | $K'_{T1}$ | $K'_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | −0.0058 | −0.1398 | −0.0605 | 0.6627 | −0.7232 | −0.29214 | −0.12961 |
| 70 | −0.0881 | −0.0420 | 0.0525 | −0.1526 | 0.2051 | 0.04512 | 0.01170 |

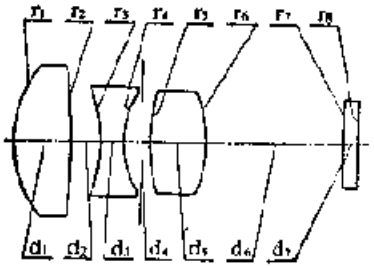


编号, 05-04-053

# 三片型工业电视镜头

E.F.L=50.56　　B.F.L=0　　FNo.−2.81　　F.A.=±9.2°

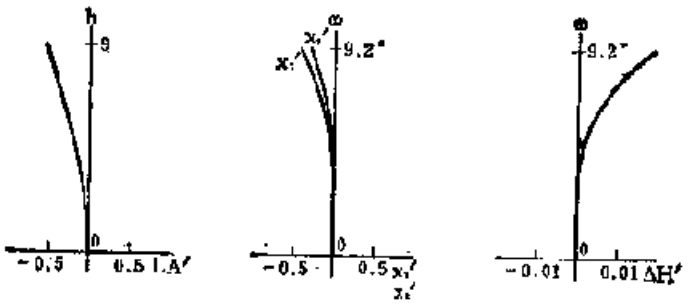


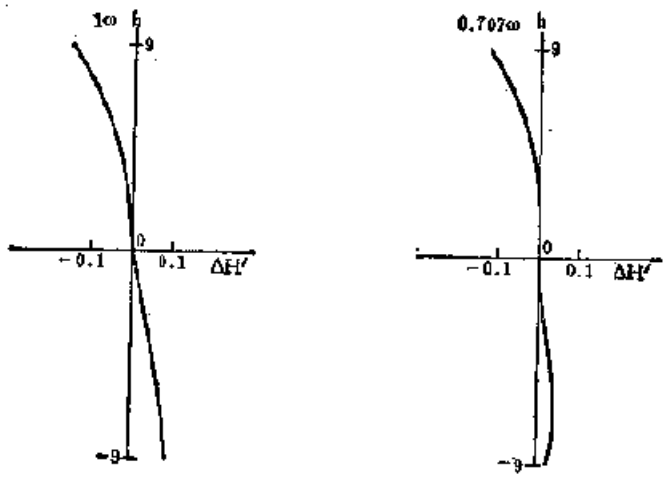

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 22.540 | 10.570 | 1.6130 | 60.6 | 5 | 32.159 | 10.570 | 1.589 | 61.2 |
| 2 | −121.955 | 5.410 | | | 6 | −23.501 | 29.497 | | |
| 3 | −27.800 | 4.300 | 1.8475 | 33.0 | 7 | ∞ | 2.600 | 1.5163 | 64.1 |
| 4 | 16.700 | 4.750* | | | 8 | ∞ | | | |

4.750* = 3.000 + 1.750

注：第四片为非面玻璃。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0513 | 0.0035 | 0.0019 | −0.0197 | 0.0045 | 8.16 | 0.23% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | −0.5358 | 0.0189 | −0.4292 | −0.3015 | −0.1277 | −0.03518 | −0.00352 |
| 70 | −0.3477 | 0.0053 | −0.1563 | −0.1452 | −0.0101 | −0.05308 | −0.00728 |

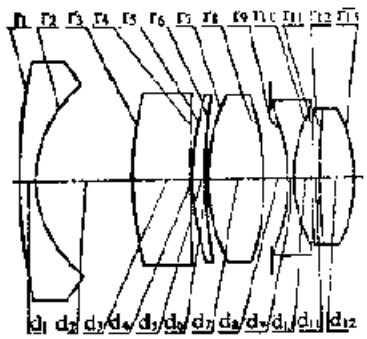


编号：05-04-054

# 逆聚焦型广角摄影物镜

E.F.L＝100.05　　B.F.L＝111.43　　FNo.＝2.8　　F.A.＝±31.5°

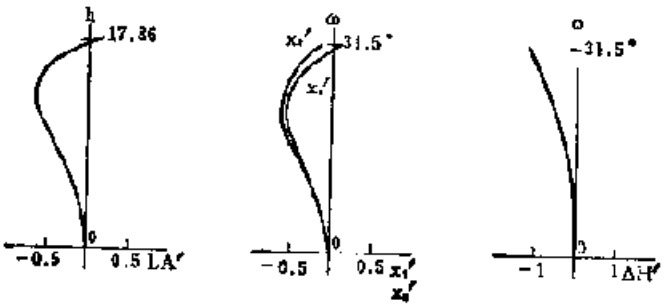


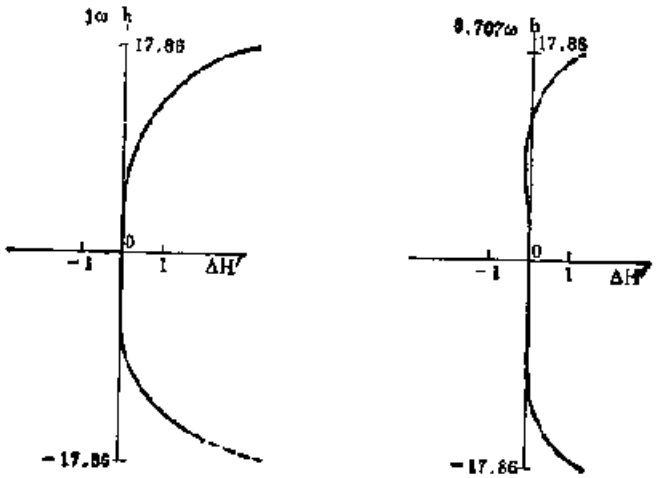
| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 252.639 | 5.111 | 1.56883 | 56.0 | 8 | −107.814 | 8.361* | | |
| 2 | 45.028 | 35.778 | | | 9 | −69.322 | 2.500 | 1.67270 | 32.1 |
| 3 | 128.350 | 20.833 | 1.61772 | 49.8 | 10 | 52.258 | 5.044 | | |
| 4 | 1299.453 | 0.444 | | | 11 | 740.983 | 2.500 | 1.58144 | 40.7 |
| 5 | 96.058 | 5.556 | 1.60342 | 38.0 | 12 | 216.769 | 12.778 | 1.65160 | 58.5 |
| 6 | 225.911 | 0.417 | | | 13 | −56.235 | | | |
| 7 | 71.833 | 19.917 | 1.62041 | 60.2 | | | | | |

8.361* = 3.333 + 5.028

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.1258 | −0.1334 | −0.0221 | −0.1163 | −0.0042 | 61.3 | −2% |

| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t'$ $x_s'$ | $K_{T1}$ | $K_{T0.7}^{s}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.1211 | −1.2297 | −0.1243 | 0.0854 | −0.2097 | 4.1326 | 0.7871 |
| 70 | −0.6605 | −0.4519 | −0.6419 | −0.6285 | −0.0134 | 1.3766 | 0.0727 |

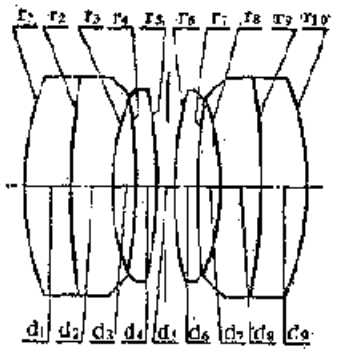


编号：05-04-055

# 校正了球差、象散、色差的对称型摄影及重显透镜系统

E.F.L＝99.94　　B.F.L＝92.60　　FNo.＝9　　F.A.＝±20°**



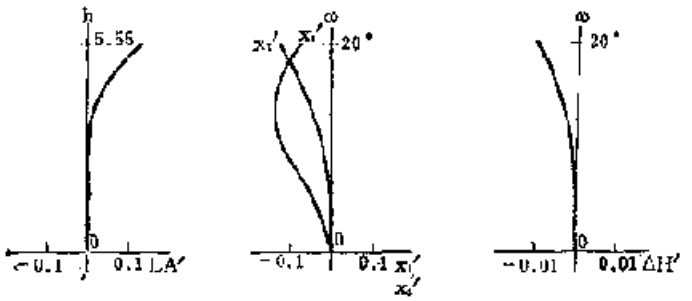

| 序号 | r | d | $n_d$ | v | 序号 | r | d | $n_d$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.56 | 2.81 | 1.61900 | 60.6 | 6 | 27.00 | 1.42 | 1.52220 | 52.8 |
| 2 | 59.45 | 2.57 | 1.53562 | 45.4 | 7 | 37.04 | 1.31 | | |
| 3 | 15.20 | 1.31 | | | 8 | −15.20 | 2.57 | 1.53562 | 45.4 |
| 4 | −37.04 | 1.42 | 1.52220 | 52.8 | 9 | −59.45 | 2.81 | 1.61900 | 60.6 |
| 5 | −27.00 | 1.08* | | | 10 | −18.56 | | | |

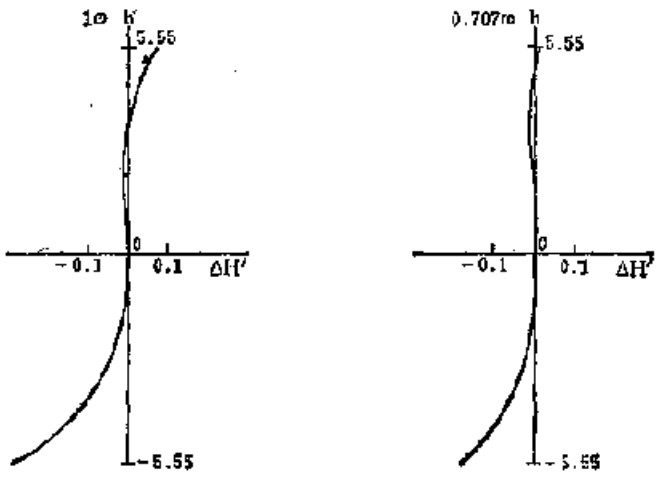
1.08* = 0.54 + 0.54

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | III | QT(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00035 | −0.00286 | 0.00106 | −0.00385 | −0.00102 | 36.5 | −0.03% |

| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T2.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.1357 | −0.0095 | −0.1261 | −0.0696 | −0.0565 | −0.1093 | −0.0434 |
| 70 | 0.0173 | −0.0034 | −0.0390 | −0.1394 | 0.1004 | −0.0809 | −0.0327 |

注：以上象差值是按 l = −∞计算的。

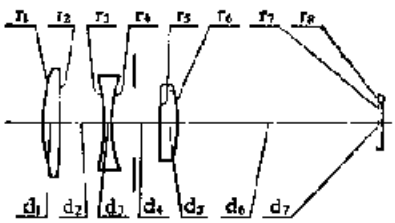


编号：05-04-056

# 三片型工业电视镜头

E.F.L＝154.34　　B.F.L＝0　　FNo.＝4.1　　F.A.＝±3.2°



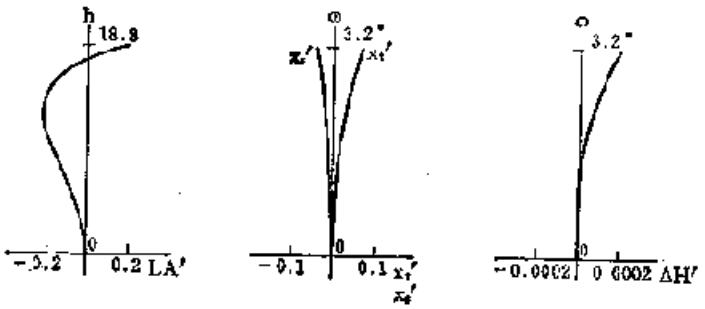

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 57.650 | 6.000 | 1.6384 | 55.5 | 5 | 378.700 | 6.000 | 1.6384 | 55.5 |
| 2 | −2592.560 | 10.455 | | | 6 | −62.000 | 127.063 | | |
| 3 | −77.415 | 3.100 | 1.6475 | 33.9 | 7 | ∞ | 2.600 | 1.5163 | 64.1 |
| 4 | 59.260 | 17.805* | | | 8 | ∞ | | | |

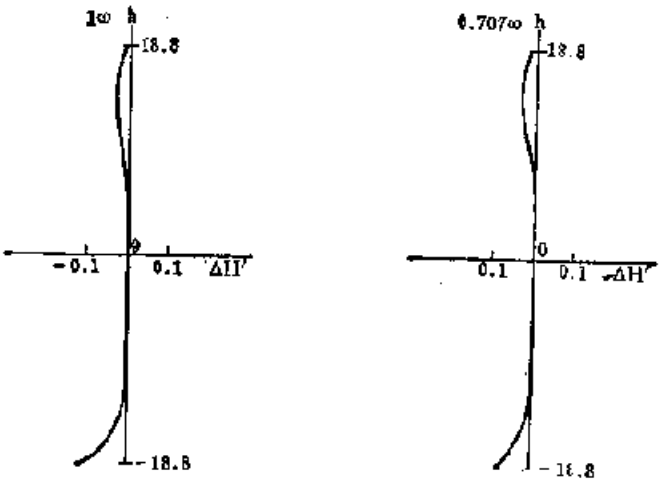
17.805* = 8.000 + 9.805

注：第四片为靶面玻璃。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.02956 | −0.00179 | 0.00159 | −0.00268 | 0.00005 | 8.5 | 0.002% |

| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.2056 | 0.00021 | 0.0715 | −0.0360 | 0.1075 | −0.06409 | −0.01975 |
| 70 | −0.2377 | 0.00007 | 0.0355 | −0.0182 | 0.0537 | −0.04468 | −0.01371 |

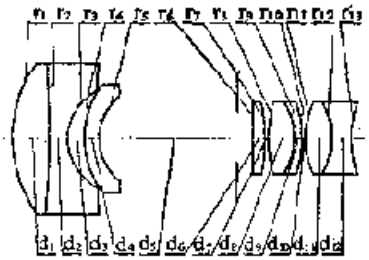


编号：05-04-057

# 短焦距摄影及投影物镜

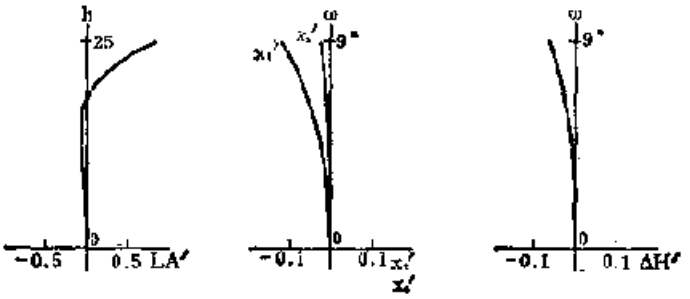
E.F.L＝100.99　　B.F.L＝101.70　　FNo.＝2.02　　F.A.＝±9°**

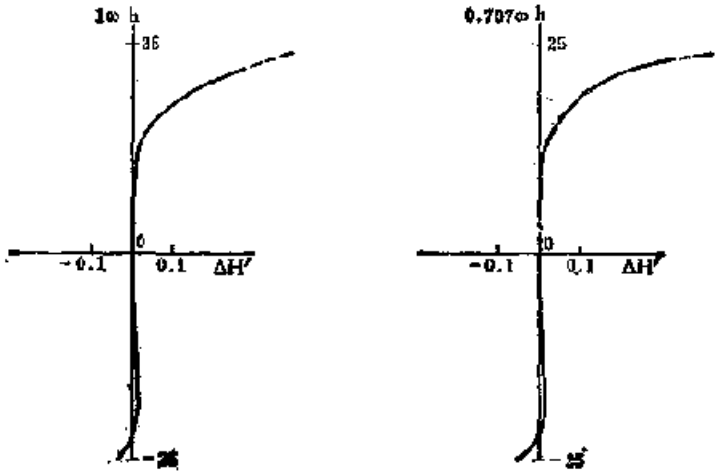


| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 174.0 | 47.2 | 1.757 | 47.8 | 8 | 214.4 | 29.6 | 1.517 | 64.1 |
| 2 | −1548.7 | 23.5 | 1.501 | 56.4 | 9 | 88.2 | 9.7 | 1.689 | 31.2 |
| 3 | 68.7 | 21.5 | | | 10 | −139.4 | 5.0 | | |
| 4 | 151.6 | 20.1 | 1.620 | 38.1 | 11 | 116.7 | 32.7 | 1.501 | 56.4 |
| 5 | 70.8 | 196.7* | | | 12 | −96.0 | 26.7 | 1.648 | 33.8 |
| 6 | −1779.0 | 15.0 | 1.733 | 51.5 | 13 | 240.2 | | | |
| 7 | −220.0 | 6.7 | | | | | | | |

196.7* = 175.0 + 21.7

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.03765 | −0.00051 | −0.00299 | −0.00004 | −0.03275 | 15.99 | −0.39% |
| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.8317 | −0.0629 | −0.1181 | −0.0207 | −0.0974 | 0.30137 | 0.05713 |
| 70 | 0.0230 | −0.0230 | −0.0477 | −0.0115 | −0.0362 | 0.22253 | 0.04176 |

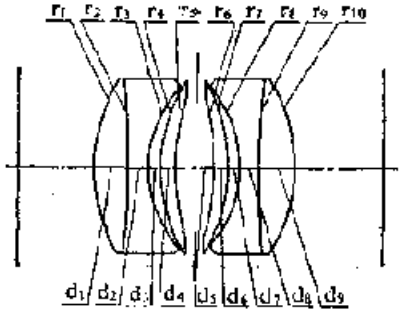


编号：05 04 -058

# 分裂式达格型对称复制透镜系统

E.F.L＝10.236　　B.F.L＝8.803　　FNo.＝5.6　　F.A.＝＋30°**

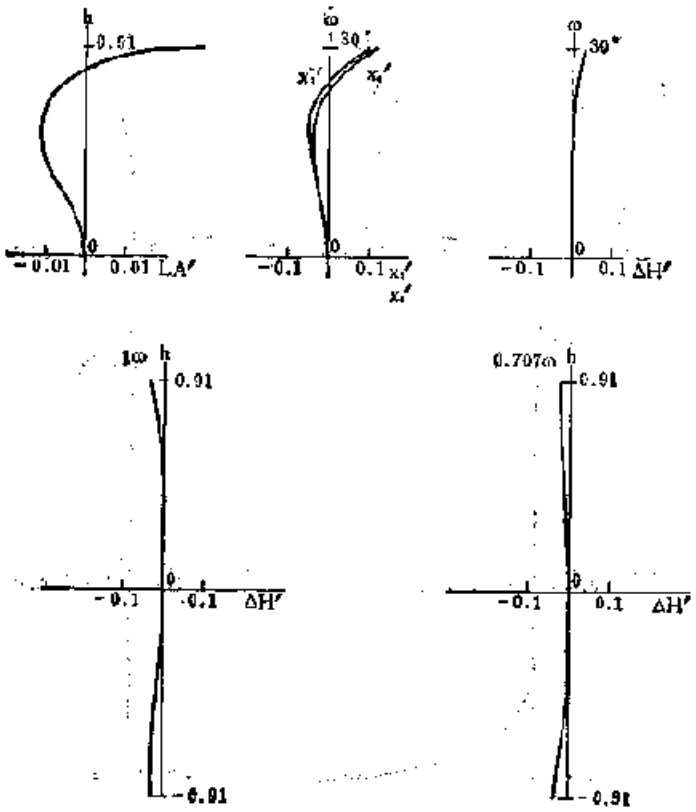



| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.553 | 0.541 | 1.658 | 50.8 | 6 | －3.761 | 0.335 | 1.623 | 57.0 |
| 2 | －29.745 | 0.309 | 1.582 | 42.1 | 7 | －2.585 | 0.167 | | |
| 3 | 1.860 | 0.167 | | | 8 | －1.860 | 0.309 | 1.582 | 42.1 |
| 4 | 2.585 | 0.235 | 1.623 | 57.0 | 9 | 29.745 | 0.541 | 1.658 | 50.8 |
| 5 | 3.761 | 0.562* | | | 10 | －2.553 | | | |

0.562* = 0.281 + 0.281

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.00097 | －0.00152 | －0.00029 | －0.00209 | 0.00249 | 5.9 | 0.4% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.0295 | 0.0254 | 0.0977 | 0.1061 | －0.0084 | －0.02357 | －0.01587 |
| 70 | －0.0108 | 0.0069 | －0.0448 | －0.0269 | －0.0179 | －0.02705 | －0.01075 |

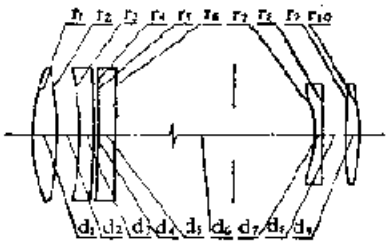
注：以上象差值是按 l ＝ －∞计算的。



编号：05-04-059

# 远 距 离 照 相 镜 头

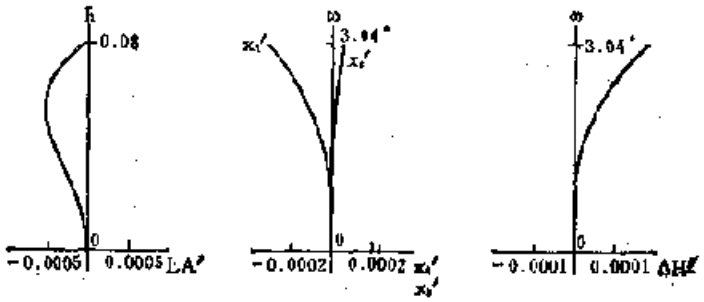
E.F.L=1.0　　B.F.L=0.24158　　FNo.=6.3　　F.A.=±3.04°

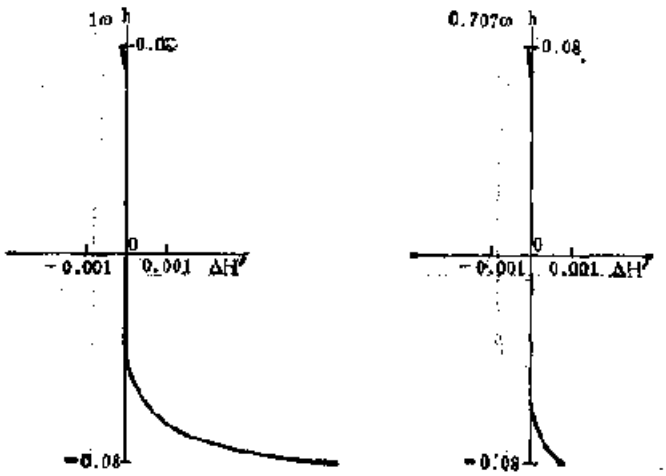



| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.22205 | 0.02896 | 1.48749 | 70.1 | 6 | ∞ | 0.35601* | | |
| 2 | −0.41049 | 0.02692 | | | 7 | −0.12005 | 0.00917 | 1.56100 | 56.2 |
| 3 | −0.31939 | 0.01864 | 1.74950 | 35.2 | 8 | 5.90482 | 0.02928 | | |
| 4 | −1.09419 | 0.00506 | | | 9 | 1.20755 | 0.01305 | 1.56342 | 38.0 |
| 5 | −1.72402 | 0.02122 | 1.59270 | 35.6 | 10 | −0.24132 | | | |

0.35601* = 0.25601 + 0.10000

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0000281 | 0.0000084 | −0.0000026 | 0.0000028 | 0.0000283 | 0.053 | 0.34% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s$ | $x_t - x_s$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | −0.000944 | 0.000181 | −0.000322 | 0.000047 | −0.000369 | 0.002613 | 0.000200 |
| 70 | −0.000541 | 0.000063 | −0.000123 | 0.000023 | −0.000146 | 0.000372 | 0.000002 |

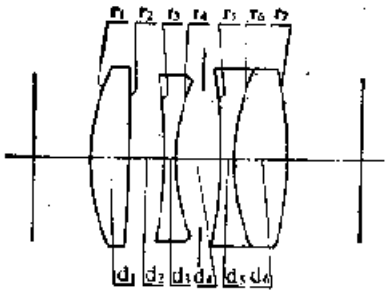


编号：05-04-060

# 三 组 元 重 显 物 镜

E.F.L＝100.05　　B.F.L＝86.64　　FNo.＝4.5　　F.A.＝±25°**



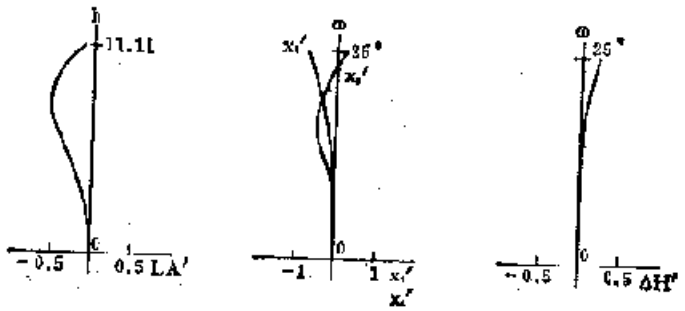

| 序号 | r | d | $n_d$ | v | 序号 | r | d | $n_d$ | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 37.36 | 4.55 | 1.62041 | 60.3 | 5 | −142.92 | 1.74 | 1.53172 | 48.9 |
| 2 | −1978.05 | 4.36 | | | 6 | 28.52 | 6.59 | 1.65844 | 50.8 |
| 3 | −62.69 | 1.65 | 1.59551 | 39.2 | 7 | −41.81 | | | |
| 4 | 25.30 | 5.23* | | | | | | | |

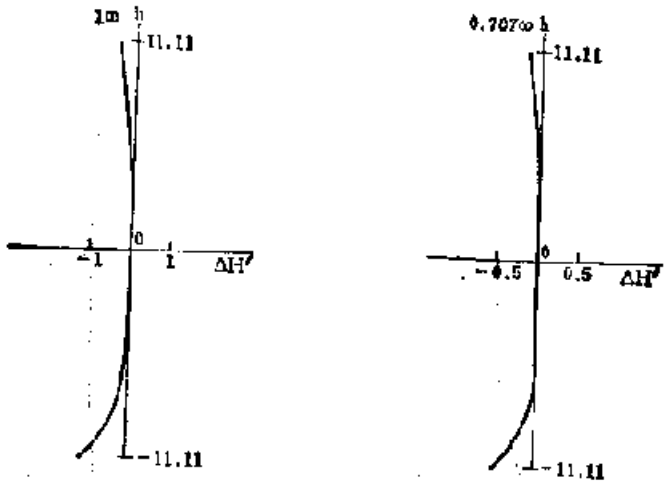
5.23* = 3.00 + 2.23

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.03797 | 0.00341 | 0.00715 | −0.05057 | 0.03632 | 46.61 | 0.44% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.1232 | 0.2077 | −0.7084 | 0.1977 | −0.9061 | −0.7421 | −0.1967 |
| 70 | −0.4816 | 0.0636 | −0.2575 | −0.4863 | 0.2288 | −0.3139 | −0.0711 |

注：1.M＝3"～10"；

2.以上象差值是按 l＝−∞计算的。

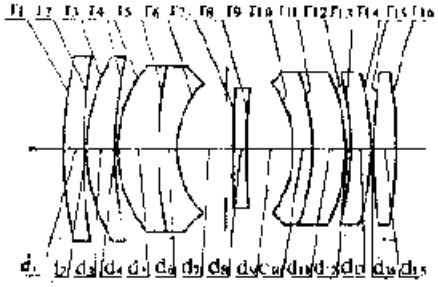


编号：05-04-061

# 大视场透镜系统

E.F.L＝1.0　　B.F.L＝0.359　　FNo.＝8　　F.A.＝±22.5°



| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.2030 | 0.0543 | 1.69089 | 54.80 | 9 | 2.2438 | 0.1141 | | |
| 2 | 2.9152 | 0.0054 | | | 10 | −0.2775 | 0.0435 | 1.60328 | 38.02 |
| 3 | 0.4459 | 0.3079 | 1.69089 | 54.80 | 11 | −0.6014 | 0.0870 | 1.69089 | 54.80 |
| 4 | 0.9530 | 0.3054 | | | 12 | −0.4394 | 0.0054 | | |
| 5 | 0.3691 | 0.1033 | 1.69089 | 54.80 | 13 | −0.7768 | 0.0543 | 1.69089 | 54.80 |
| 6 | 1.3253 | 0.0435 | 1.64762 | 33.88 | 14 | −0.6610 | 0.0054 | | |
| 7 | 0.2195 | 0.1408* | | | 15 | 1.3292 | 0.0543 | 1.69089 | 54.80 |
| 8 | 6.3772 | 0.0326 | 1.64762 | 33.88 | 16 | −1.4244 | | | |

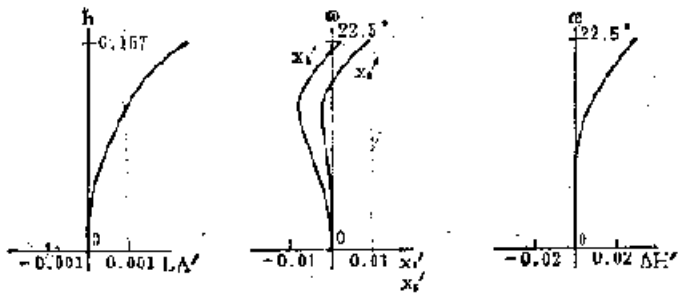
0.1408* = 0.1208 + 0.0200

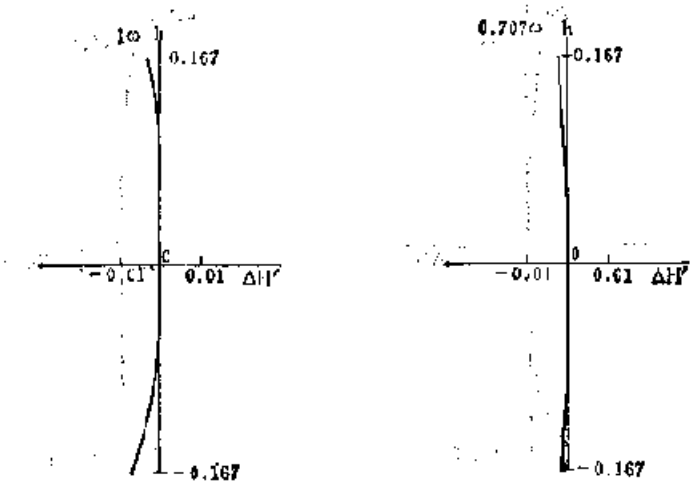
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.000090 | −0.000262 | −0.000270 | −0.000338 | 0.007274 | 0.41 | 7.1% |

| 上或∞% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{1c.7}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.00243 | 0.0295 | 0.00257 | 0.00893 | −0.00636 | −0.00521 | −0.00257 |
| 70 | 0.00100 | 0.0087 | −0.00792 | −0.00223 | −0.00569 | −0.00224 | −0.00111 |

注：1.实际的使用值是E.F.L＝184；

2.M＝0.2*。

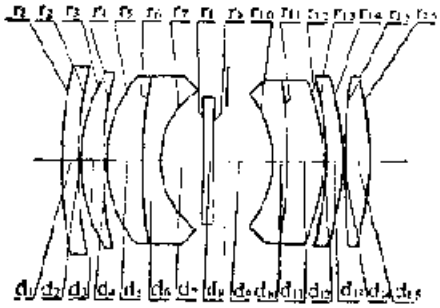


编号：05-04-062

# 大视场透镜系统

E.F.L＝1.0　　B.F.L＝0.4586　　FNo.－4　　F A.－±22.5°



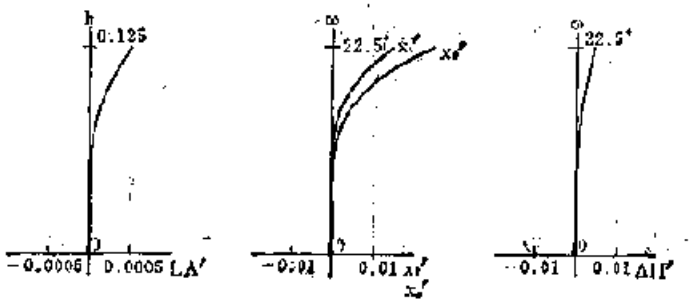
| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.1595 | 0.0416 | 1.69089 | 54.80 | 9 | 5.8480 | 0.0408 | | |
| 2 | 1.6344 | 0.0052 | | | 10 | 0.2729 | 0.0377 | 1.60328 | 38.02 |
| 3 | 0.4209 | 0.0571 | 1.69089 | 54.80 | 11 | －1.3645 | 0.0909 | 1.69089 | 54.80 |
| 4 | 0.9905 | 0.0052 | | | 12 | －0.4587 | 0.0052 | | |
| 5 | 0.3319 | 0.0922 | 1.60089 | 54.80 | 13 | －0.6390 | 0.0442 | 1.69089 | 54.80 |
| 6 | 2.5044 | 0.0377 | 1.64752 | 33.88 | 14 | －0.6287 | 0.0052 | | |
| 7 | 0.2076 | 0.1065 | | | 15 | 2.2256 | 0.0571 | 1.69089 | 54.80 |
| 8 | －32.9440 | 0.0260 | 1.64752 | 33.88 | 16 | －0.9501 | | | |

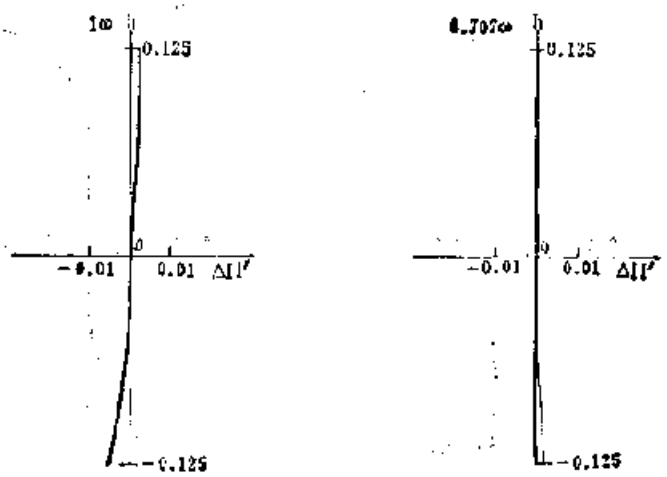
$0.1408^{*} = 0.0300 + 0.1108$

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | III | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.0000019 | －0.0000635 | 0.0000195 | －0.0001124 | 0.0017054 | 0.41 | 1.07% |
| h 或ω% | LA′ | ΔH′ | $x_1'$ | $x_2'$ | $x_1'-x_2'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.000511 | 0.00442 | 0.02500 | 0.01479 | 0.01021 | －0.001879 | －0.000855 |
| 70 | 0.000139 | 0.00316 | 0.00405 | 0.00203 | 0.00202 | －0.000863 | －0.000405 |

注：1.实际的使用值是E.F.L＝385；

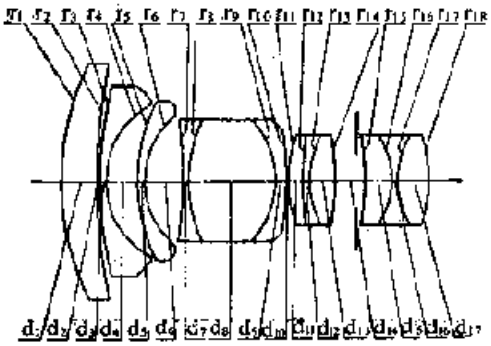
2.M＝0.1″。



# 逆聚焦型透镜系统

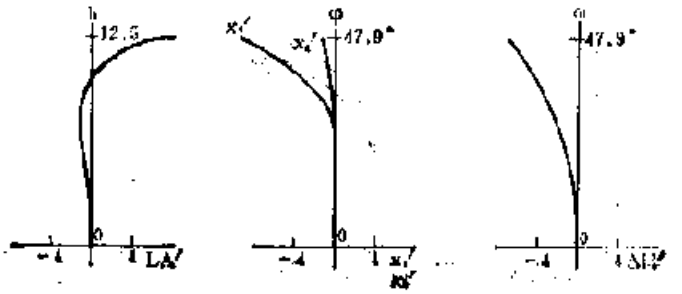
E.F.L＝100　　B.F.L＝189.3　　FNo.＝4　　F.A.＝±47.9°

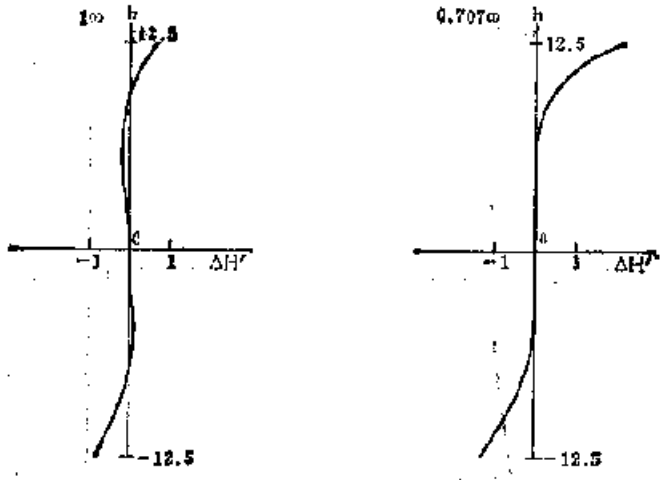


| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 140.000 | 18.0 | 1.61720 | 54.0 | 10 | −193.474 | 0.5 | | |
| 2 | 406.168 | 0.5 | | | 11 | 60.500 | 7.5 | 1.59270 | 35.4 |
| 3 | 180.000 | 3.5 | 1.64000 | 60.2 | 12 | 180.000 | 3.0 | 1.74077 | 27.7 |
| 4 | 41.772 | 15.5 | | | 13 | 44.600 | 12.5 | 1.51118 | 50.9 |
| 5 | 88.000 | 3.5 | 1.64000 | 60.2 | 14 | −119.362 | 14.0* | | |
| 6 | 41.814 | 18.0 | | | 15 | 195.000 | 13.0 | 1.60729 | 49.3 |
| 7 | −230.000 | 3.5 | 1.62041 | 60.3 | 16 | −43.500 | 3.0 | 1.72342 | 38.0 |
| 8 | 70.000 | 42.0 | 1.66446 | 35.9 | 17 | 42.000 | 15.5 | 1.58921 | 41.0 |
| 9 | −45.060 | 5.0 | 1.63980 | 34.6 | 18 | −58.393 | | | |

14.0* = 10.0 + 4.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | OP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.1541 | −0.0331 | 0.0562 | −0.0068 | −1.4384 | 110.07 | −0.1% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t - x_s$ | $K'_{r1}$ | $K'_{r0.7}$ |
| 100 | 8.0998 | −6.6667 | −9.668 | −1.277 | −8.391 | −0.0310 | −0.1000 |
| 70 | −0.8661 | −2.9284 | −1.173 | −0.365 | −0.808 | 0.4992 | −0.0916 |

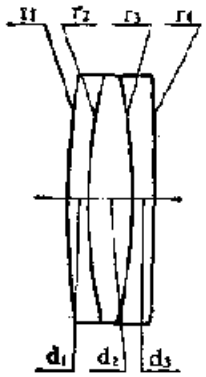


编号：05-04-064

# 二级光谱较小的三透镜物镜

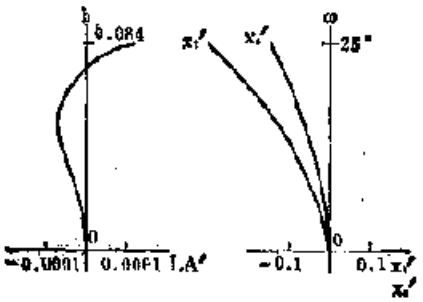
E.F.L＝1.008　　B.F.L＝0.977　　FNo.＝6　　F.A.＝±25°**

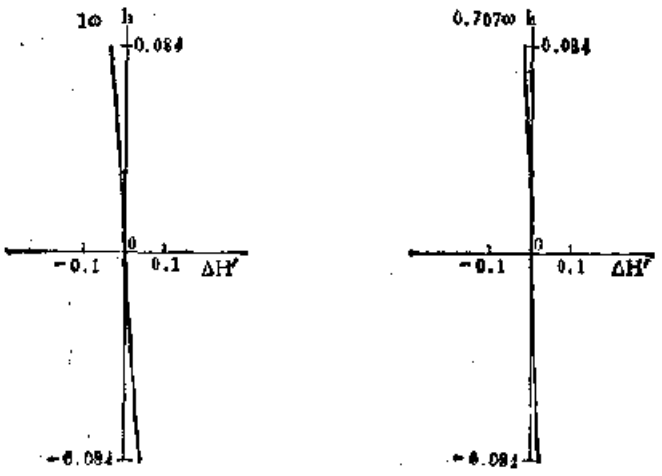



| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_e$ | $\nu_e$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.614160 | 0.012* | 1.67245 | 45.8 | 3 | −0.320041 | 0.012 | 1.57125 | 55.8 |
| 2 | 0.320041 | 0.025 | 1.54408 | 73.0 | 4 | −3.373730 | | | |

0.012* = 0.000 + 0.012

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0000051 | 0.0000025 | −0.0012139 | −0.0008802 | −0.0001311 | 0.47 | −0.21% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{Te.7}'$ |
| 100 | 0.0001115 | −0.000990 | −0.299 | −0.151 | −0.148 | 0.001104 | 0.000590 |
| 70 | −0.0000698 | −0.000326 | −0.161 | −0.078 | −0.083 | 0.000272 | 0.000158 |

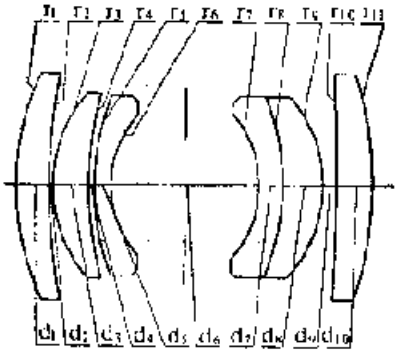


编号：05-04-065

# 用于近紫外的透镜系统

**E.F.L=9.93　　B.F.L=6.62　　FNo.=5.56　　F.A.=±11°～±18°**




| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 4.092 | 0.570 | 1.5170 | 64.5 | 6 | 1.601 | 2.246* | | |
| 2 | 10.298 | 0.016～0.253 | | | 7 | −1.634 | 0.349 | 1.5725 | 42.5 |
| | | | | | 8 | −3.868 | 0.650 | 1.5170 | 64.5 |
| 3 | 2.173 | 0.546 | 1.5170 | 64.5 | 9 | −2.138 | 0.201 | | |
| 4 | 5.440 | 0.082 | | | 10 | −44.823 | 0.582 | 1.5170 | 64.5 |
| 5 | 3.951 | 0.272 | 1.5725 | 42.5 | 11 | −5.108 | | | |

2.246* = 1.123 + 1.123

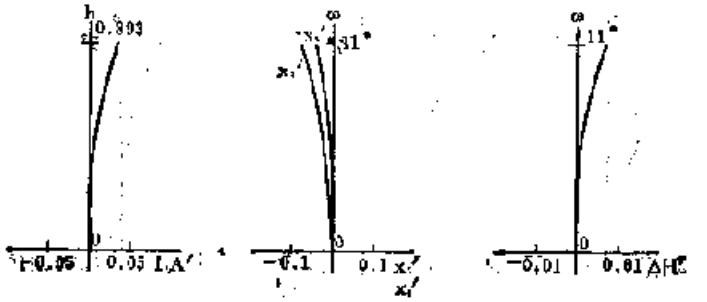
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.009406 | −0.000476 | −0.000208 | −0.000507 | 0.001253 | 1.9 | 0.38% |

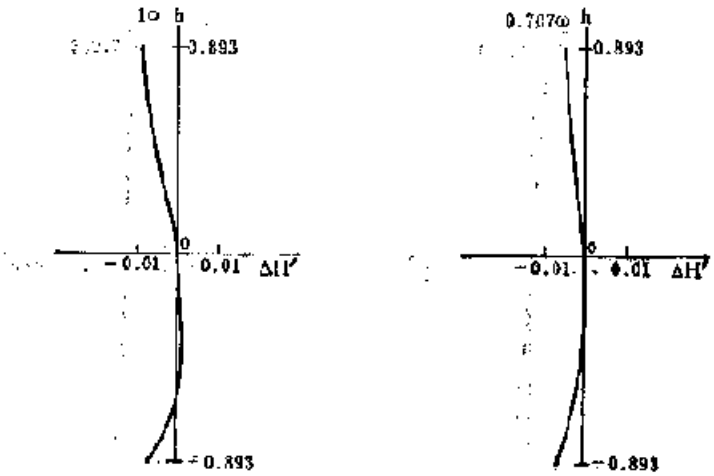
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s$ | $x_t - x_s$ | $K'_{T1}$ | $K_{10-1}$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.0335 | 0.0073 | −0.0773 | −0.0445 | −0.0328 | −0.00758 | −0.00362 |
| 70 | 0.0146 | 0.0025 | −0.0375 | −0.0225 | −0.0150 | −0.00577 | −0.00274 |

注：1. M = 1*～0.25*，F.A. = ±11°～±18°；

2. 以上象差值是按 $d_2$ = 0.016 计算的；

3. λ = 3600～4400 Å。

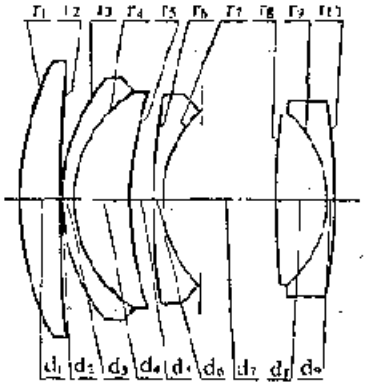


编号：05-04-066

# 大孔径远距离照相镜头

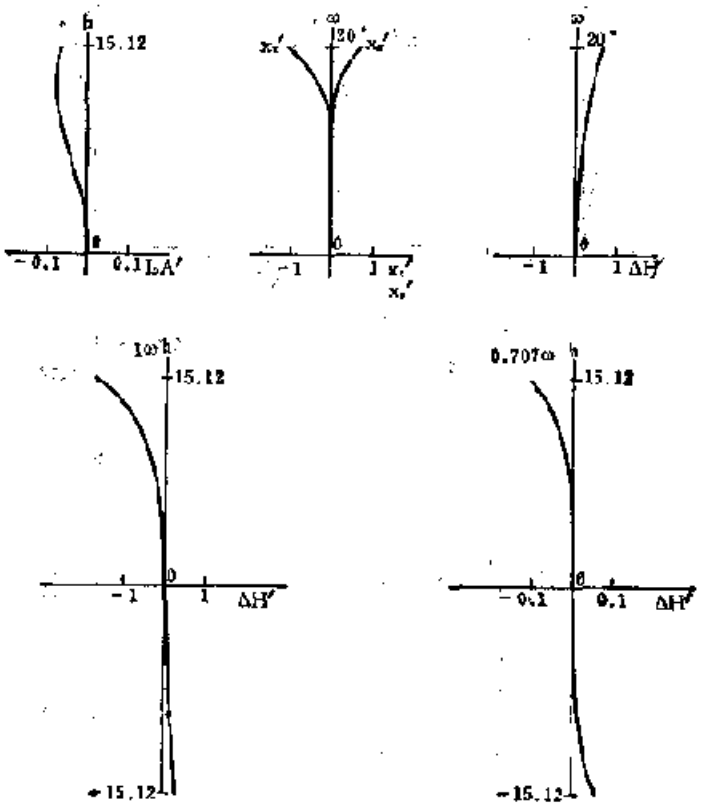
E.F.L＝84.992　　B.F.L＝42.327　　FNo.＝2.81　　F.A.＝±20°**



| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 47.415 | 3.24 | 1.05100 | 56.15 | 6 | 119.915 | 1.40 | 1.80518 | 25.43 |
| 2 | 382.376 | 0.15 | | | 7 | 18.538 | 17.50* | | |
| 3 | 29.457 | 1.80 | 1.60311 | 60.70 | 8 | 125.044 | 7.00 | 1.69700 | 48.51 |
| 4 | 19.612 | 8.87 | 1.69100 | 54.84 | 9 | －17.176 | 0.90 | 1.62299 | 58.14 |
| 5 | 53.405 | 3.60 | | | 10 | －122.866 | | | |

17.50* = 5.00 + 12.50

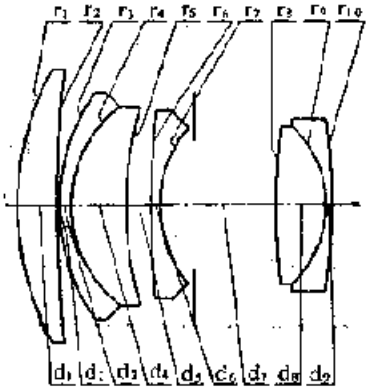
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | －0.01519 | 0.00067 | 0.01524 | －0.04543 | 0.31837 | 31 | 2.1% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t$　$x_s'$ | $K_{T.}$ | $K_{T0.7}$ |
| 100 | －0.0670 | 0.6689 | －1.0797 | 0.6784 | －1.7581 | －0.76448 | －0.15946 |
| 70 | －0.0768 | 0.3039 | 0.0095 | 0.0044 | 0.0051 | －0.02678 | －0.00165 |



编号：05-04-067

# 大孔径远距离照相镜头

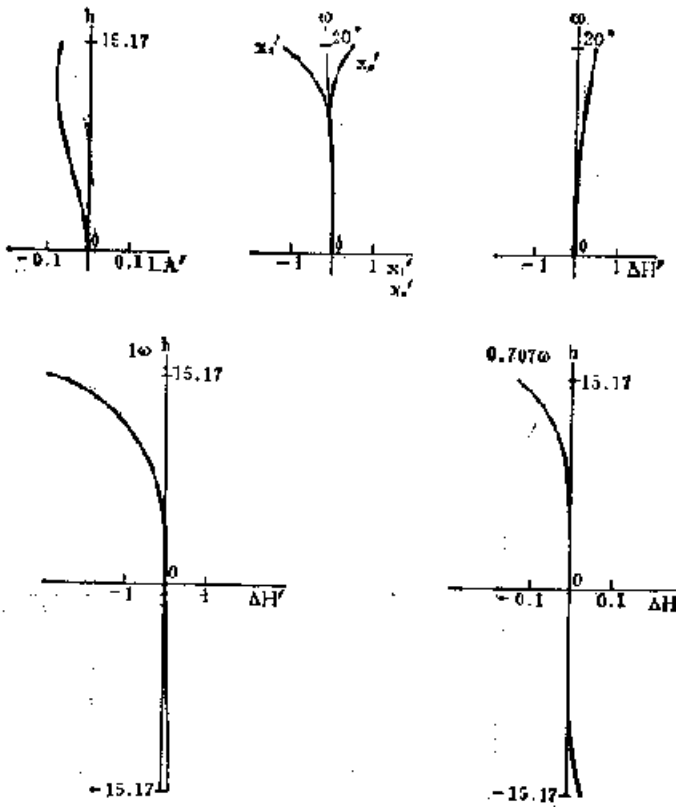
E.F.L＝85.016　　B.F.L＝41.621　　FNo.＝2.8　　F.A.＝±20°**




| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 44.137 | 6.28 | 1.65100 | 56.15 | 6 | 128.926 | 1.40 | 1.78470 | 26.22 |
| 2 | 281.551 | 0.15 | | | 7 | 18.536 | 17.78* | | |
| 3 | 30.663 | 1.80 | 1.61272 | 58.75 | 8 | 103.353 | 7.60 | 1.67790 | 50.72 |
| 4 | 19.458 | 8.87 | 1.69680 | 56.51 | 9 | −16.302 | 0.90 | 1.62041 | 60.27 |
| 5 | 53.203 | 3.60 | | | 10 | −129.614 | | | |

17.78* = 5.00 + 12.78

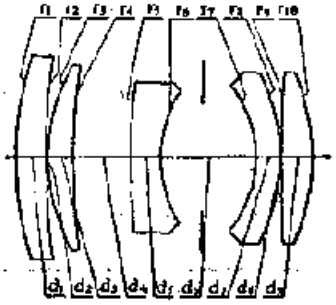
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.01563 | 0.00334 | 0.01410 | −0.04771 | 0.29069 | 31 | 1.4% |
| h 或 ω % | LA′ | ΔH′ | $x_s$ | $x_t'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}'$ |
| 100 | −0.06984 | 0.4320 | −1.0426 | 0.6839 | −1.7265 | −1.36548 | −0.23047 |
| 70 | −0.07926 | 0.2533 | 0.0172 | −0.0048 | 0.0220 | −0.05324 | −0.00466 |



编号：05-04-068

# 长焦距透镜系统

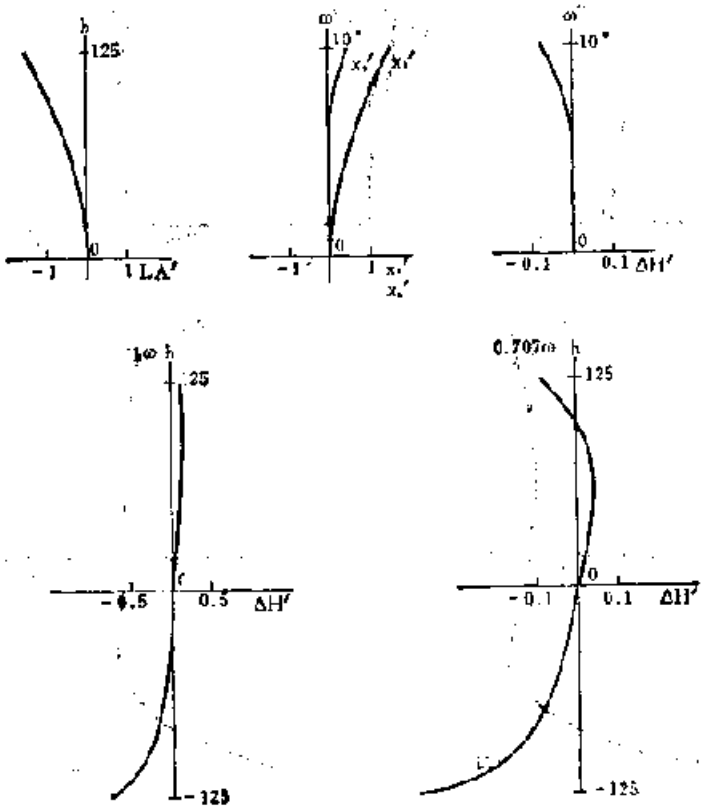
E.F.L＝1000.99　　B.F.L＝616.65　　FNo.＝4　　F.A.＝±10°



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 634.300 | 54.68 | 1.64000 | 60.2 | 6 | 221.843 | 175.00* | | |
| 2 | 2007.820 | 1.99 | | | 7 | −215.442 | 43.74 | 1.54814 | 45.9 |
| 3 | 345.582 | 50.00 | 1.64000 | 60.2 | 8 | −338.465 | 5.01 | | |
| 4 | 1215.569 | 703.89 | | | 9 | 5691.000 | 55.01 | 1.75700 | 47.7 |
| 5 | 1931.321 | 55.01 | 1.76182 | 26.5 | 10 | −391.378 | | | |

175.00* = 75.00 + 100.00

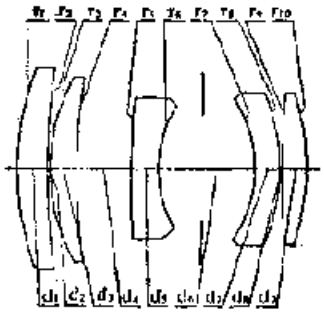
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0683 | 0.0022 | 0.0343 | −0.0383 | 0.0033 | 176.5 | −0.04% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}'$ |
| 100 | −1.4890 | −0.0763 | 1.5146 | 0.4235 | 1.0911 | −0.3088 | −0.0524 |
| 70 | 0.9223 | −0.0094 | 0.9266 | 0.0718 | 0.8548 | −0.2413 | −0.0474 |



编号：05-04-069

# 长焦距透镜系统

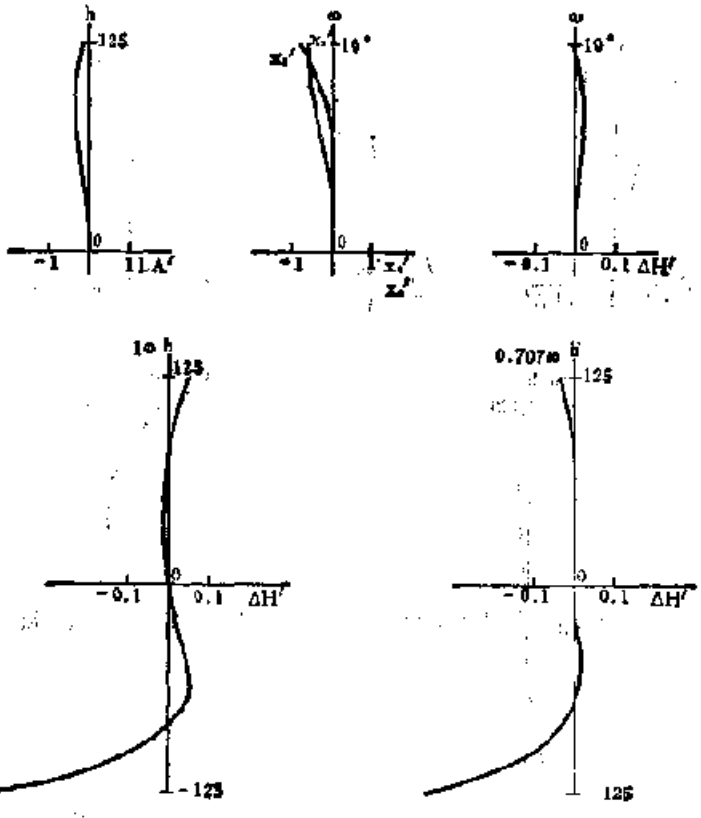
E.F.L=1000　　B.F.L=586.01　　FNo.=4　　F.A.=±10°



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 513.958 | 55.01 | 1.64000 | 60.2 | 6 | 224.189 | 174.98* | | |
| 2 | 1365.181 | 1.97 | | | 7 | −235.127 | 43.74 | 1.53172 | 48.9 |
| 3 | 356.518 | 48.99 | 1.64000 | 60.2 | 8 | −371.879 | 5.01 | | |
| 4 | 1338.771 | 100.61 | | | 9 | 2167.227 | 43.74 | 1.74320 | 49.3 |
| 5 | 2996.500 | 51.99 | 1.74077 | 27.7 | 10 | −453.395 | | | |

*174.98=74.98+100.00

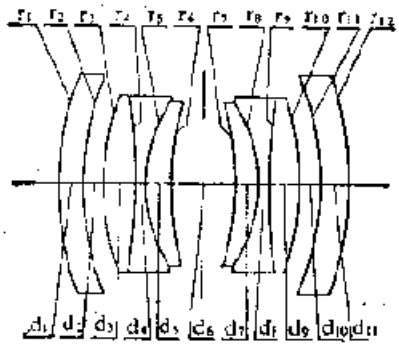
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HT | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0382 | 0.0030 | 0.0178 | −0.0531 | 0.0287 | 176.3 | −0.006% |
| h或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.1620 | −0.0114 | 0.6053 | −0.5805 | −0.2248 | −0.2071 | 0.0023 |
| 70 | −0.3568 | 0.0194 | −0.1603 | −0.4309 | 0.2701 | +0.2076 | −0.0276 |



编号：05-04-070

# 复消色差的对称广角物镜

E.F.L＝97.19　　B.F.L＝89.15　　FNo.＝14.6　　F.A.＝±22.5°

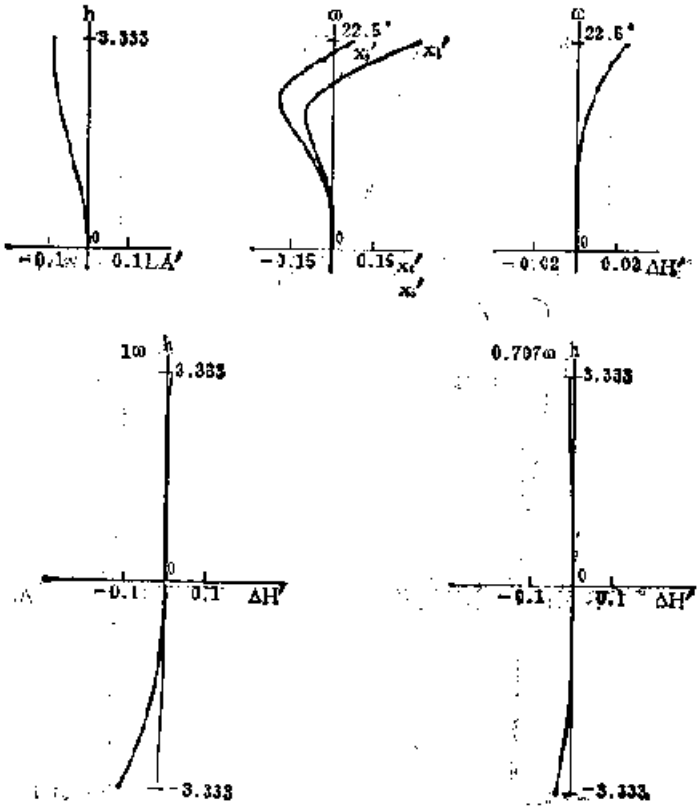


| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_c$ | $\nu_c$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 18.81 | 1.75 | 1.518 | 56.6 | 7 | −18.13 | 1.43 | 1.466 | 65.7 |
| 2 | 18.71 | 1.22 | | | 8 | −8.93 | 0.79 | 1.560 | 53.7 |
| 3 | 18.13 | 1.77 | 1.661 | 57.1 | 9 | 43.61 | 1.77 | 1.661 | 57.1 |
| 4 | 43.61 | 0.79 | 1.560 | 53.7 | 10 | −18.13 | 1.22 | | |
| 5 | 8.93 | 1.43 | 1.466 | 65.7 | 11 | −18.71 | 1.75 | 1.518 | 56.6 |
| 6 | 18.13 | 3.90* | | | 12 | −18.81 | | | |

3.90* − 1.95 + 1.95

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1∞) |
|---|---|---|---|---|---|---|---|
| | −0.00049 | −0.00068 | 0.00014 | −0.00199 | 0.00105 | 40.29 | 0.06% |
| h或ω% | LA′ | ΔH′ | $x_1'$ | $x_2'$ | $x_t'-x_s'$ | $K_T$ | $K_{T0.7}$ |
| 100 | −0.0907 | 0.0242 | 0.3308 | 0.0796 | 0.2602 | −0.0404 | −0.0189 |
| 70 | −0.0765 | 0.0070 | −0.0915 | −0.2056 | 0.1140 | −0.0267 | −0.0125 |

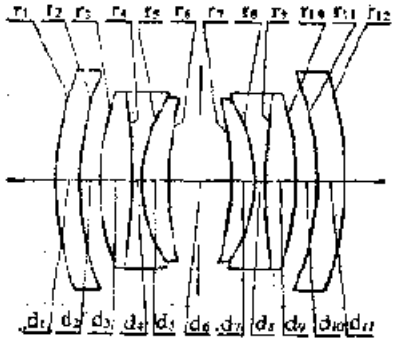
注：以上象差值是按 l = −∞计算的。



编号：05-04-071

# 复消色差的对称广角物镜

E.F.L＝95.82　　B.F.L＝88.29　　FNo.＝14.4　　F.A.＝±22.5°



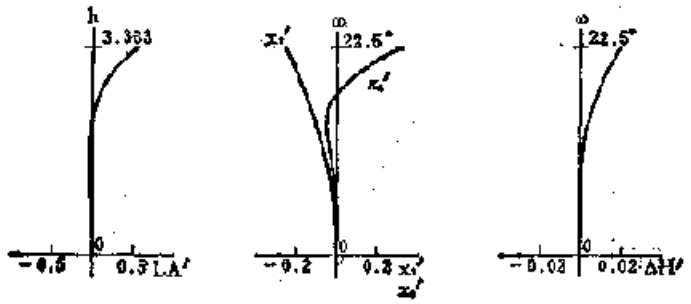
| 序号 | r | d | $n_e$ | $\nu_e$ | 序号 | r | d | $n_e$ | $\nu_e$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 24.01 | 1.35 | 1.520 | 65.0 | 7 | −15.26 | 1.43 | 1.517 | 64.5 |
| 2 | 21.28 | 1.22 | | | 8 | −5.96 | 0.79 | 1.560 | 53.7 |
| 3 | 14.51 | 1.67 | 1.623 | 60.1 | 9 | 21.73 | 1.67 | 1.623 | 60.1 |
| 4 | −21.73 | 0.79 | 1.560 | 53.7 | 10 | −14.51 | 1.22 | | |
| 5 | 5.96 | 1.43 | 1.517 | 64.5 | 11 | −21.28 | 1.35 | 1.520 | 65.0 |
| 6 | 15.26 | 3.90* | | | 12 | −24.01 | | | |

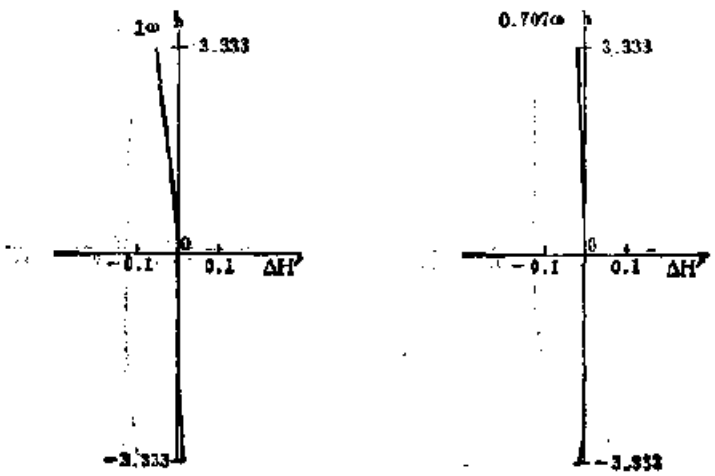
3.90* = 1.95 + 1.95

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00072 | −0.00072 | 0.00009 | −0.00127 | 0.00085 | 39.7 | 0.05% |

| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T_1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.6727 | 0.0205 | −0.2565 | 0.3321 | −0.5946 | −0.0216 | −0.0126 |
| 70 | 0.0420 | 0.0058 | −0.1184 | −0.0558 | −0.0626 | −0.0197 | −0.0105 |

注：以上象差值是按 $l = -\infty$ 计算的。

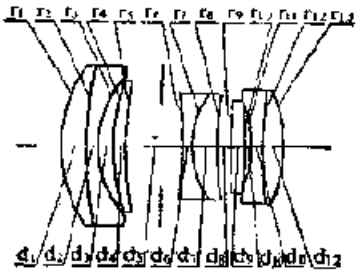


编号：05-04-072

# 五组元摄影物镜

E.F.L＝1.0　　B.F.L＝0.6317　　FNo.＝5.6　　F.A.＝±15°

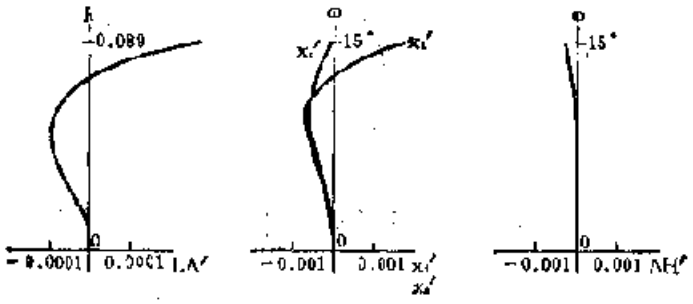


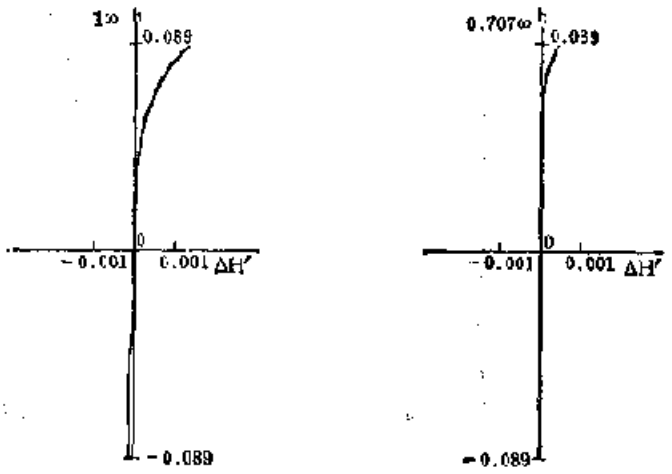
| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2534 | 0.0500 | 1.6968 | 55.6 | 8 | 0.6164 | 0.0224 | | |
| 2 | 1.1473 | 0.0200 | 1.5814 | 40.8 | 9 | 5.7274 | 0.0250 | 1.6968 | 55.6 |
| 3 | 0.1904 | 0.0250 | | | 10 | −0.4841 | 0.0120 | | |
| 4 | 0.3650 | 0.0250 | 1.6968 | 55.6 | 11 | −0.2043 | 0.0200 | 1.5814 | 40.8 |
| 5 | 0.7042 | 0.1039* | | | 12 | 0.6874 | 0.0400 | 1.6968 | 55.6 |
| 6 | −1.1127 | 0.0150 | 1.6228 | 56.9 | 13 | −0.2432 | | | |
| 7 | 0.1656 | 0.0500 | 1.5920 | 48.5 | | | | | |

0.1039* = 0.0639 + 0.0400

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.0000105 | −0.0000078 | −0.0000133 | −0.0000242 | −0.0000569 | 0.268 | −0.12% |

| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t - x_s$ | $K_{T1}'$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.000272 | −0.000325 | 0.001755 | −0.000077 | 0.001833 | 0.000659 | 0.000156 |
| 70 | −0.000084 | −0.000116 | −0.000695 | −0.000656 | −0.000039 | 0.000234 | 0.000039 |

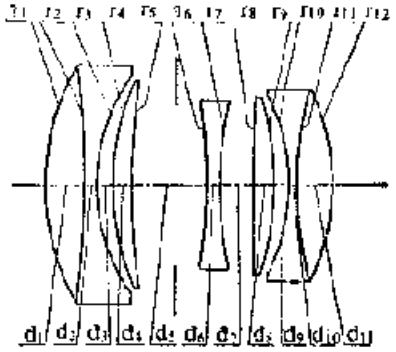


编号：05-04-073

# 五组元摄影物镜

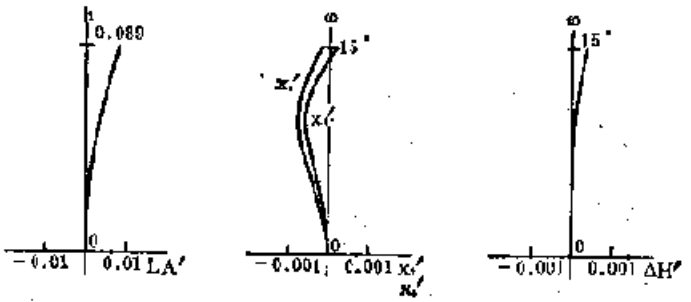
E.F.L＝1.035　　B.F.L＝0.8946　　FNo.＝5.8　　F.A.＝±15°

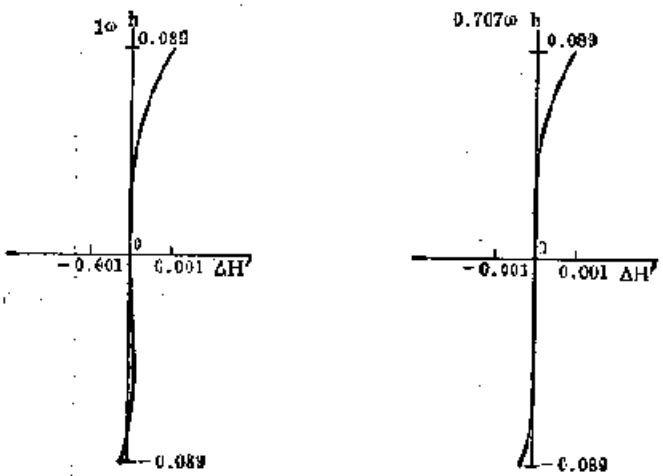



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2583 | 0.0400 | 1.6204 | 60.3 | 7 | 0.3960 | 0.0335 | | |
| 2 | −0.9211 | 0.0120 | 1.5294 | 51.8 | 8 | 4.8054 | 0.0200 | 1.6204 | 60.3 |
| 3 | 0.1953 | 0.0380 | | | 9 | −0.3152 | 0.0160 | | |
| 4 | 0.2743 | 0.0200 | 1.6204 | 60.3 | 10 | −0.1915 | 0.0100 | 1.5294 | 51.8 |
| 5 | 0.7614 | 0.0745* | | | 11 | 0.4248 | 0.0360 | 1.6204 | 60.3 |
| 6 | −0.5011 | 0.0150 | 1.6584 | 50.9 | 12 | −0.2398 | | | |

*0.0745* = 0.0445 + 0.0300

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.0000025 | 0.0000173 | 0.0000012 | −0.0000425 | 0.0000542 | 0.277 | 0.12% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s'$ | $x_t - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.00825 | 0.00034 | 0.00014 | −0.00016 | 0.00030 | 0.000462 | 0.000200 |
| 70 | 0.00370 | 0.00012 | −0.00059 | −0.00078 | 0.00019 | 0.000325 | 0.000142 |

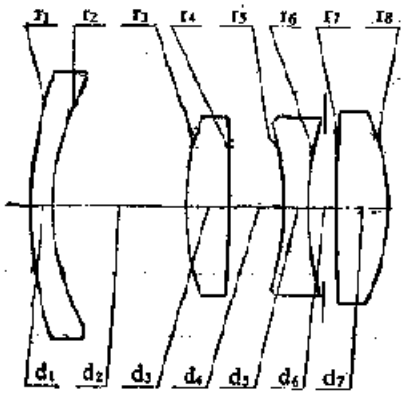


编号：05-04-074

# 四组元照相物镜

E.F.L＝1.0　　B.F.L＝1.017　　FNo.＝3.5　　F.A.＝±30°

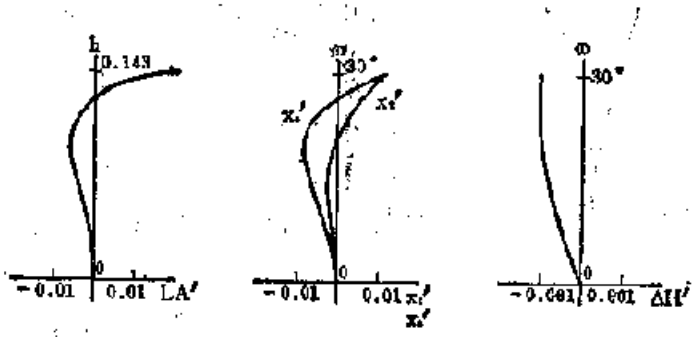


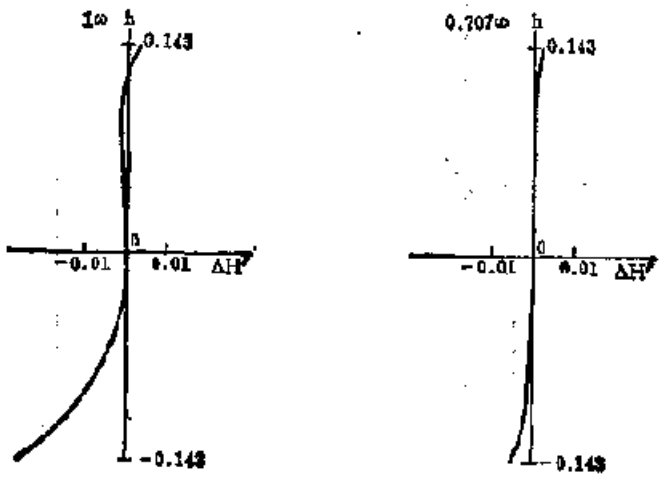

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.6845 | 0.0295 | 1.52011 | 64.9 | 5 | −0.4438 | 0.0398 | 1.66680 | 35.2 |
| 2 | 0.3700 | 0.2051 | | | 6 | 0.4567 | 0.0427* | | |
| 3 | 0.3939 | 0.0671 | 1.72340 | 50.2 | 7 | 2.0819 | 0.0795 | 1.62286 | 60.0 |
| 4 | −1.8516 | 0.0828 | | | 8 | −0.3366 | | | |

0.0427* = 0.0227 + 0.0200

注：前部两个透镜可移动聚焦。

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.001048 | −0.000008 | 0.000162 | −0.001388 | −0.000766 | 0.578 | −0.18% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.02045 | −0.00105 | 0.01196 | 0.01205 | −0.00009 | −0.01131 | −0.00532 |
| 70 | −0.00631 | −0.00101 | 0.00045 | −0.00785 | 0.00830 | −0.00127 | −0.00105 |

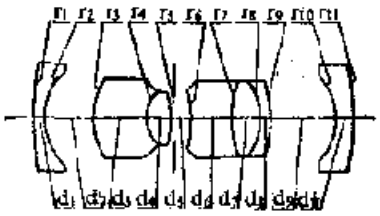


编号：05-04-075

# 四 组 元 物 镜

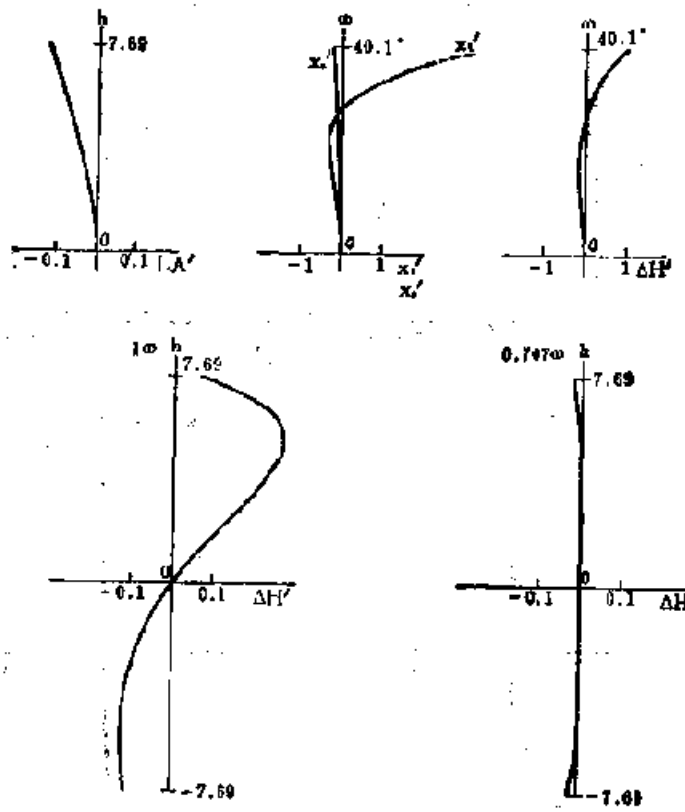
E.F.L=99.91　　B.F.L=18.04　　FNo.=6.5　　F.A.=+40.1°**



| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 232.61 | 7.80 | 1.498 | 67.0 | 7 | 71.16 | 21.16 | 1.755 | 50.6 |
| 2 | 47.19 | 36.40 | | | 8 | −45.53 | 5.70 | 1.720 | 29.3 |
| 3 | 52.37 | 39.23 | 1.784 | 26.1 | 9 | 86.18 | 49.39 | | |
| 4 | 26.32 | 17.35 | 1.498 | 67.0 | 10 | −44.90 | 12.07 | 1.498 | 67.0 |
| 5 | −84.80 | 14.31* | | | 11 | −205.38 | | | |
| 6 | −102.53 | 31.07 | 1.498 | 67.0 | | | | | |

14.31* = 2.00 + 12.31

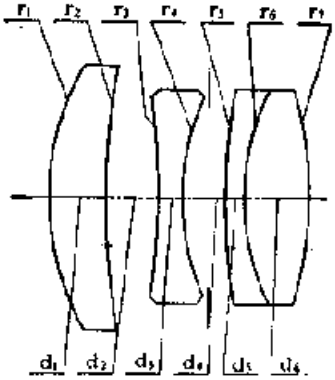
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP (1ω) |
|---|---|---|---|---|---|---|---|
| | −0.00251 | −0.00191 | −0.00107 | −0.00158 | −0.05456 | 84.1 | 1.2% |
| h 或 ω % | LA′ | ΔH′ | $x_1'$ | $x_2'$ | $x_1'-x_2'$ | $K_1'$ | $K_{T0.7}'$ |
| 100 | −0.123 | 1.008 | 5.224 | −0.223 | 5.447 | −0.0275 | 0.0696 |
| 70 | −0.085 | −0.934 | 0.042 | −0.172 | 0.214 | −0.0209 | −0.0047 |



编号：05-04-076

# 三组四片投影透镜系统

**E.F.L=101.9　　B.F.L=85.13　　FNo.−3.57　　F.A.=±17.7°**



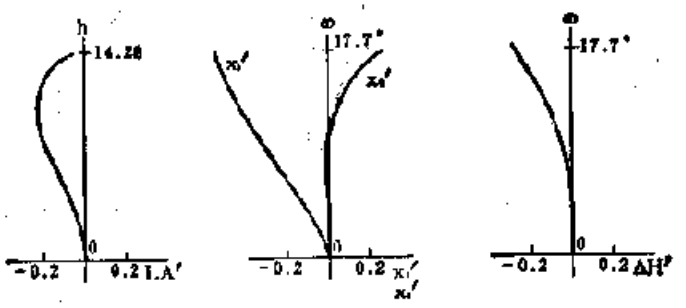

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 41.6 | 8.73 | 1.73 | 51.3 | 5 | 192.8 | 2.96 | 1.62 | 36.6 |
| 2 | 190.0 | 7.99 | | | 6 | 37.3 | 9.74 | 1.74 | 44.9 |
| 3 | −86.7 | 3.55 | 1.67 | 32.2 | 7 | −57.9 | | | |
| 4 | 37.3 | 6.72* | | | | | | | |

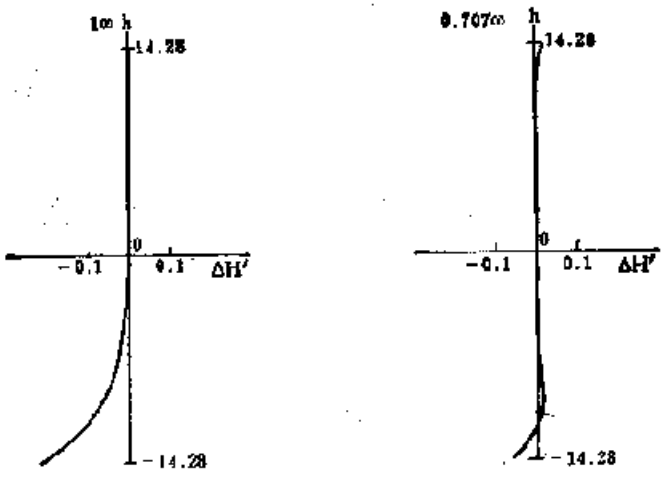
6.72* = 3.76 + 2.96

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.03103 | 0.00712 | 0.01684 | −0.05677 | −0.06028 | 32.5 | −0.9% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.032 | −0.300 | 0.274 | −0.562 | 0.836 | −0.1133 | −0.0290 |
| 70 | −0.234 | −0.092 | 0.045 | −0.408 | 0.453 | −0.0192 | 0.0055 |

注：1. M=21.5*；

2. 以上象差值是按 l = −∞ 计算的。

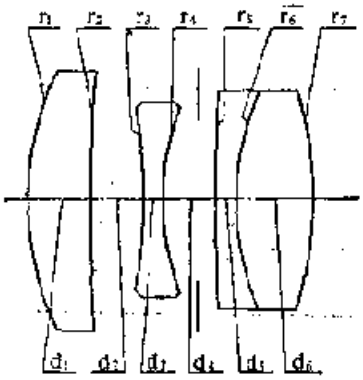


编号：05-04-077

# 三组四片投影透镜系统

E.F.L=101.77　　B.F.L=84.52　　FNo.=3.05　　F.A.=±17.7°



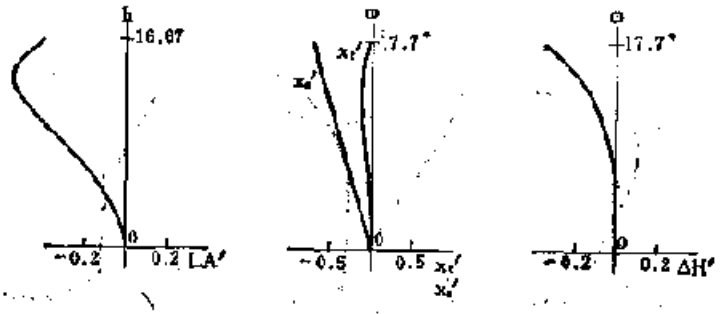

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 44.2 | 9.89 | 1.73 | 51.3 | 5 | 229.2 | 3.29 | 1.62 | 36.6 |
| 2 | 280.1 | 7.79 | | | 6 | 40.4 | 11.77 | 1.74 | 44.9 |
| 3 | -89.9 | 3.29 | 1.67 | 32.2 | 7 | -69.5 | | | |
| 4 | 39.0 | 7.93* | | | | | | | |

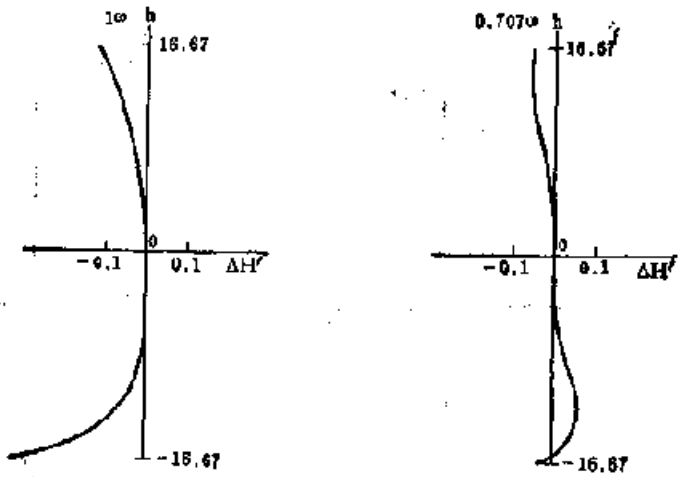
7.93* = 5.16 + 2.77

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | -0.07736 | 0.01476 | 0.01910 | -0.08125 | -0.08504 | 32.5 | 1.1% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s$ | $x_t - x_s$ | $K'_{T_1}$ | $K'_{T_{0.7}}$ |
| 100 | -0.390 | -0.348 | -0.044 | -0.716 | 0.672 | -0.2193 | -0.0599 |
| 70 | -0.508 | -0.108 | -0.108 | -0.482 | 0.374 | -0.0448 | 0.0081 |

注。1. M=25.5*。

2. 以上象差值是按 l = -∞计算的。

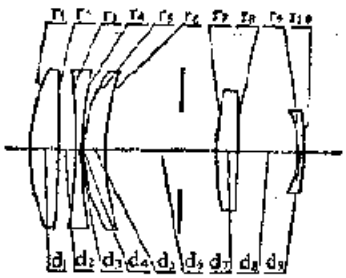


编号：05-04-078

# 低色差透镜系统

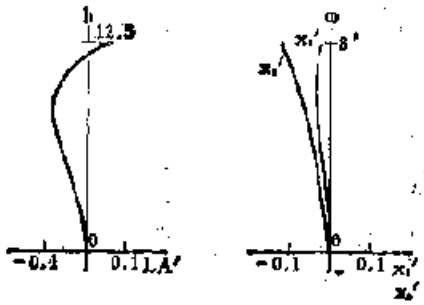
E. F. L＝100　　B. F. L＝40.17　　FNo. ＝4　　F. A. ＝±8°

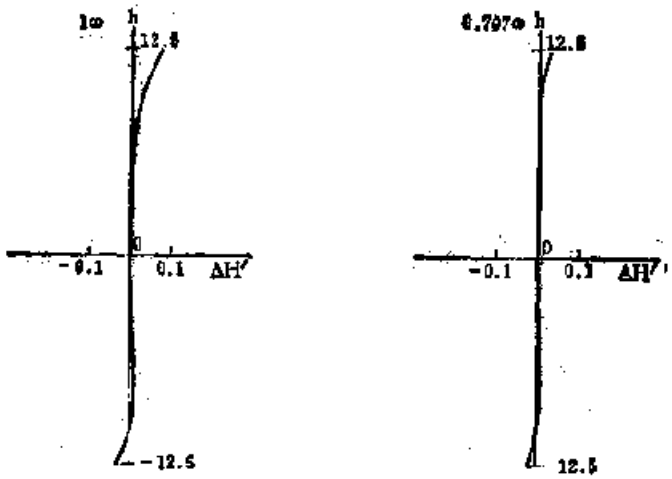


| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35.90 | 5.0 | 1.5163 | 64.0 | 6 | 16.32 | 20.0* | | |
| 2 | −706.46 | 3.0 | | | 7 | 52.00 | 4.0 | 1.6034 | 38.0 |
| 3 | −117.00 | 1.5 | 1.7174 | 29.5 | 8 | −751.74 | 11.0 | | |
| 4 | 86.77 | 0.2 | | | 9 | − 18.00 | 1.0 | 1.5111 | 60.5 |
| 5 | 26.60 | 4.0 | 1.5163 | 64.0 | 10 | − 58.21 | | | |

20.0* = 14.0 + 6.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ⊙) |
|---|---|---|---|---|---|---|---|
| | − 0.01098 | 0.00118 | 0.00080 | − 0.00528 | 0.02806 | 14.1 | 0.79% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.0631 | 0.1121 | −0.0185 | −0.1266 | 0.1081 | 0.0194 | 0.0106 |
| 70 | −0.0858 | 0.0398 | −0.0275 | −0.0678 | 0.0403 | 0.0111 | 0.0059 |

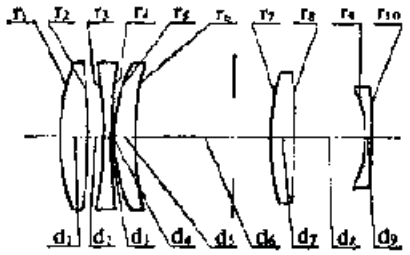


编号：05-04-079

# 低色差透镜系统

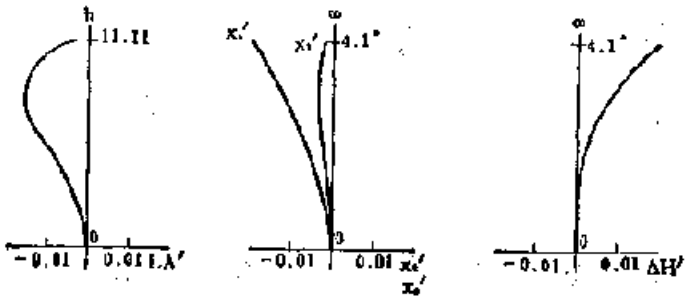
E.F.L＝99.98　　B.F.L＝33.51　　FNo.＝4.5　　F.A.＝±4.1°

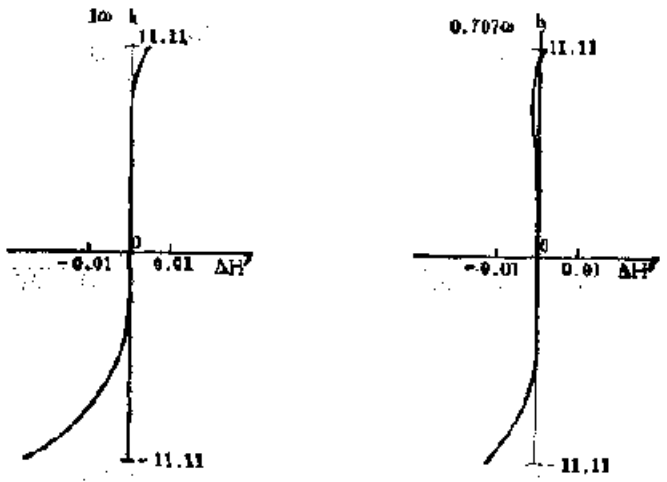


| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 40.000 | 5.0 | 1.4339 | 94.7 | 6 | 60.389 | 25.0° | | |
| 2 | 193.927 | 3.0 | | | 7 | 49.400 | 4.0 | 1.5501 | 47.0 |
| 3 | −82.000 | 1.5 | 1.6200 | 36.3 | 8 | −340.211 | 13.2 | | |
| 4 | 188.429 | 0.2 | | | 9 | −20.23 | 1.0 | 1.5891 | 61.2 |
| 5 | 30.000 | 4.0 | 1.4339 | 94.7 | 10 | −104.691 | | | |

25.0° = 18.0 + 7.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | − 0.00154 | − 0.00014 | 0.00013 | − 0.00069 | 0.00482 | 7.2 | 0.3% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | − 0.0020 | 0.0217 | − 0.0017 | − 0.0206 | 0.0189 | − 0.00999 | − 0.00347 |
| 70 | − 0.0168 | 0.0075 | − 0.0033 | − 0.0108 | 0.0075 | − 0.00597 | − 0.00201 |

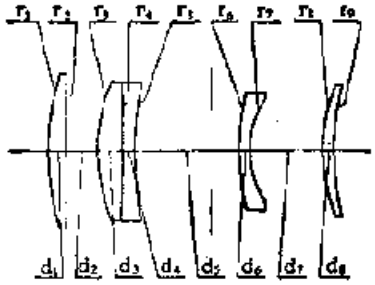


编号：05-04-080

# 远距离照相镜头

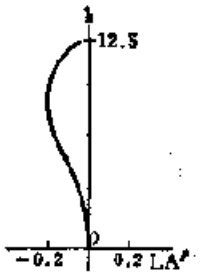
E. F. L＝100.02　　B. F. L＝31.99　　FNo. ＝4　　F. A. ＝±6.01°

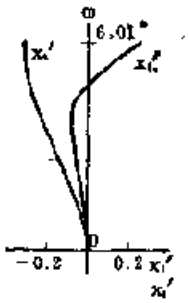


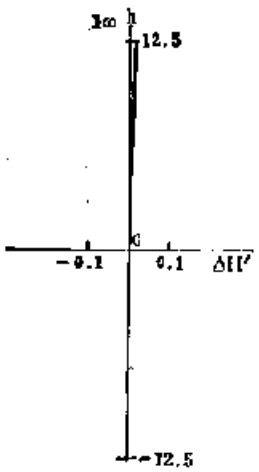

| 序号 | r | d | n | v | 序号 | r | d | n | v |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 50.727 | 3.18 | 1.62041 | 60.2 | 6 | 51.530 | 1.84 | 1.67790 | 55.3 |
| 2 | ∞ | 5.81 | | | 7 | 17.371 | 13.42 | | |
| 3 | 30.358 | 4.84 | 1.48749 | 69.8 | 8 | 32.302 | 2.12 | 1.78472 | 25.6 |
| 4 | −551.360 | 2.26 | 1.76182 | 26.5 | 9 | 52.335 | | | |
| 5 | 65.822 | 19.25* | | | | | | | |

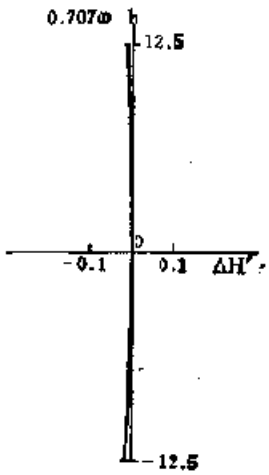
19.25* − 14.00 + 5.25

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.00236 | −0.00136 | 0.00022 | −0.00236 | 0.03687 | 10.54 | 1.37% |
| t 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | −0.00325 | 0.1445 | 0.0263 | −0.0319 | 0.0582 | 0.00281 | 0.00325 |
| 70 | −0.02041 | 0.0519 | −0.0070 | −0.0257 | 0.0187 | −0.00888 | −0.00291 |



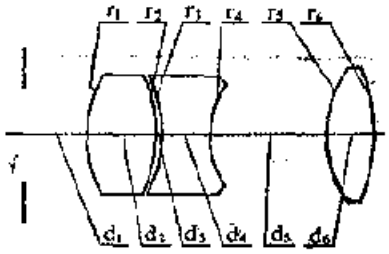


编号：05-04-081

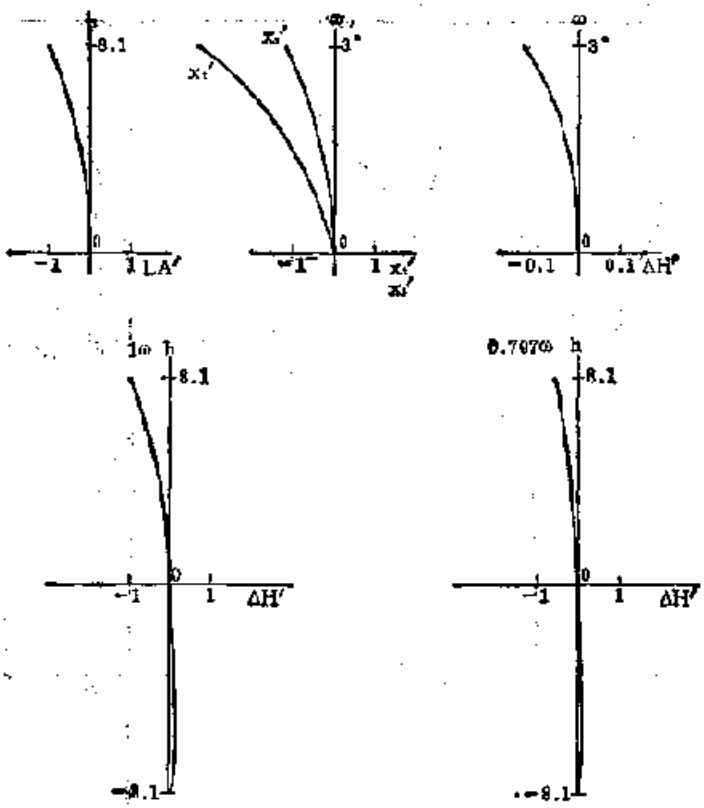
# 三 组 元 物 镜

E.F.L＝81.15　B.F.L＝61.68　FNo.＝5　F.A.＝±3°**　$L'_{p1}$＝－24.4




| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| | | 24.40* | | | 4 | 31.4 | 43.00 | | |
| 1 | 44.1 | 24.90 | 1.49 | 57.4 | 5 | 41.5 | 16.80 | 1.49 | 57.4 |
| 2 | －52.4 | 1.41 | | | 6 | －62.5 | | | |
| 3 | －45.9 | 16.40 | 1.57 | 36.6 | | | | | |

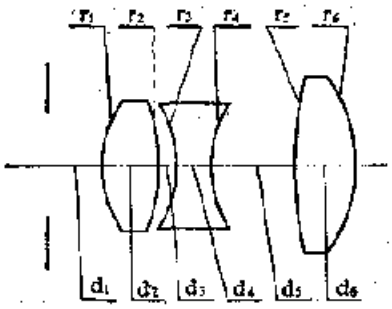
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | －0.0194 | －0.0210 | －0.0219 | －0.0013 | －0.0261 | 4.2 | －3.2% |
| h 或 ω% | LA′ | ΔH′ | $x'_t$ | $x'_s$ | $x'_t - x'_s$ | $K'_{T1}$ | $K'_{T0.7}$ |
| 100 | －0.997 | －0.137 | －3.441 | －1.203 | －2.238 | －0.4172 | －0.1973 |
| 70 | －0.492 | －0.047 | －1.702 | －0.592 | －1.110 | －0.2875 | －0.1273 |



编号：05-04~082

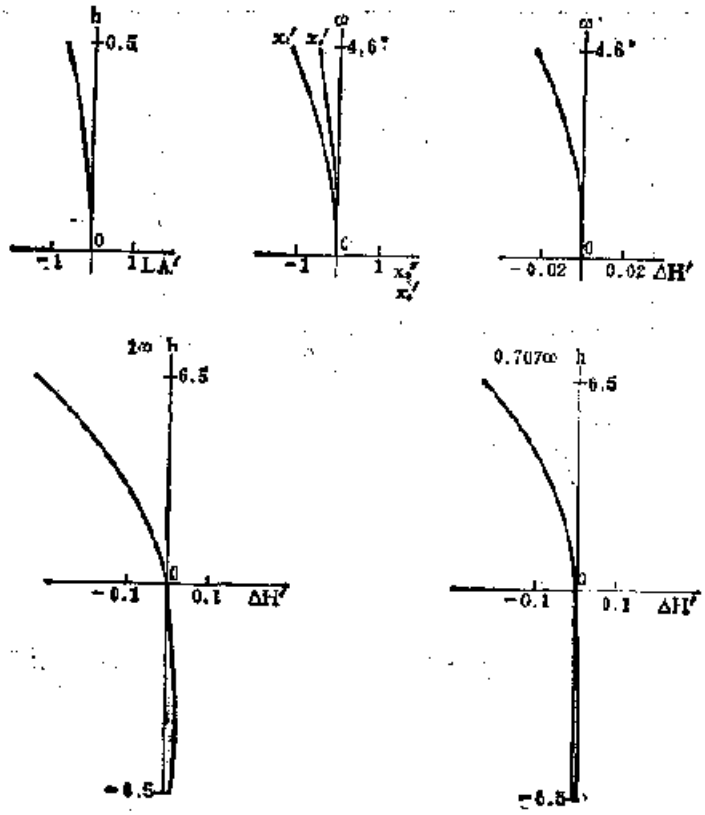
# 三 组 元 物 镜

E F.L＝73.0　B.F.L＝45.62　FNo.＝5.6　F.A.＝±4.6°**　$L'_{p1}$＝－11.5




| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| | | 11.5* | | | 4 | 24.4 | 16.8 | | |
| 1 | 23.0 | 11.7 | 1.49 | 57.4 | 5 | 84.2 | 12.3 | 1.49 | 57.4 |
| 2 | －37.4 | 3.2 | | | 6 | －30.8 | | | |
| 3 | －24.5 | 7.7 | 1.57 | 36.6 | | | | | |

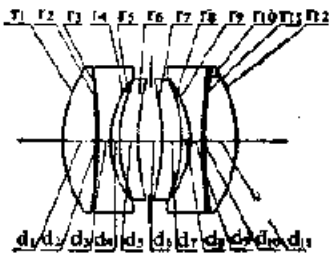
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | －0.01217 | －0.00943 | －0.00549 | －0.00215 | －0.00444 | 5.8 | －0.4% |
| h 或ω% | LA′ | ΔH′ | $x'_1$ | $x'_4$ | $x'_5-x'_4$ | $K'_{T1}$ | $K_{T0.7}$ |
| 100 | －0.694 | －0.025 | －1.179 | －0.484 | －0.695 | －0.1584 | －0.0806 |
| 70 | －0.306 | －0.009 | －0.589 | －0.242 | －0.347 | －0.1105 | －0.0563 |



编号：05-04-083

# 倒置的高斯型对称复印透镜系统

E. F. L＝100　　B. F. L＝85.182　　FNo. ＝4.5　　F. A. ＝±20°**

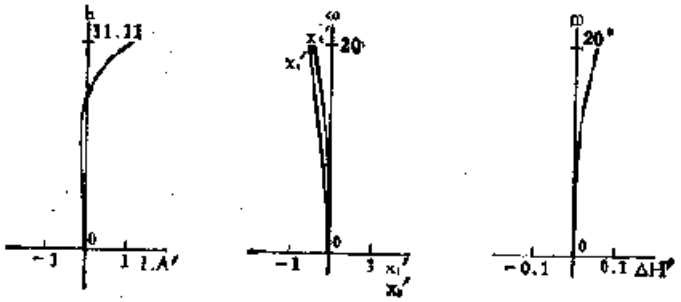


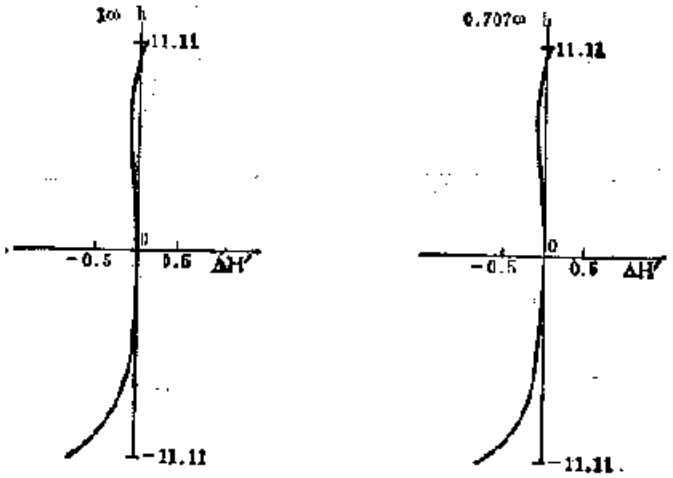
| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 23.893 | 6.020 | 1.6110 | 57.2 | 7 | −40.717 | 3.540 | 1.5230 | 50.5 |
| 2 | −94.764 | 0.048 | | | 8 | −26.007 | 1.470 | | |
| 3 | −94.764 | 2.600 | 1.5497 | 45.8 | 9 | −17.670 | 2.600 | 1.5497 | 45.8 |
| 4 | 17.670 | 1.470 | | | 10 | 94.764 | 0.048 | | |
| 5 | 26.007 | 3.540 | 1.5230 | 50.5 | 11 | 94.764 | 6.020 | 1.6110 | 57.2 |
| 6 | 40.717 | 4.220* | | | 12 | −23.893 | | | |

4.220* = 2.110 + 2.110

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.0243 | −0.0217 | 0.0037 | −0.0210 | 0.0091 | 36.5 | 0.15% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_t'$ | $x_t'-x_s'$ | $K_{F1}$ | $K_{T0.7}'$ |
| 100 | 1.1534 | 0.0549 | −0.395 | −0.479 | 0.084 | −0.3635 | −0.1557 |
| 70 | −0.0546 | 0.0172 | −0.233 | −0.342 | 0.109 | −0.3861 | −0.1265 |

注：以上象差值是按 $\bar{l}=-\infty$ 计算的。

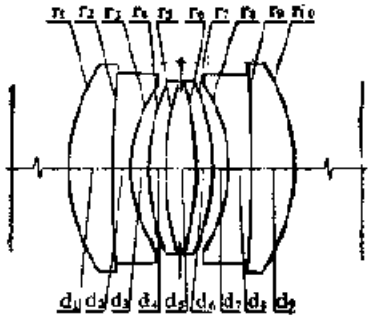


编号：05-04-084

# 四组元对称投影物镜

E.F.L＝148.56　　B.F.L＝129.56　　FNo.＝5.6　　F.A.＝±20°**



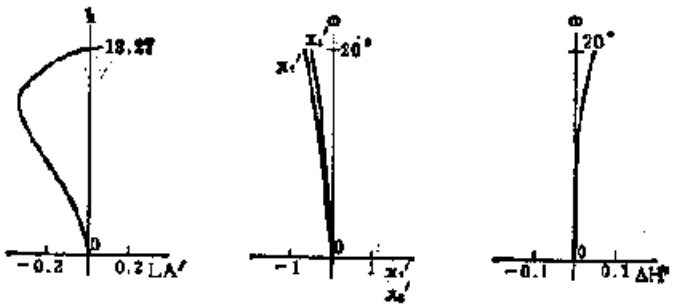
| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35.98 | 7.81 | 1.670 | 47.2 | 6 | −58.73 | 3.14 | 1.638 | 55.5 |
| 2 | 313.33 | 4.11 | 1.605 | 38.0 | 7 | −39.50 | 3.19 | | |
| 3 | 27.20 | 3.19 | | | 8 | −27.20 | 4.11 | 1.605 | 38.0 |
| 4 | 39.50 | 3.14 | 1.638 | 55.5 | 9 | −313.33 | 7.81 | 1.670 | 47.2 |
| 5 | 58.73 | 5.30* | | | 10 | −35.98 | | | |

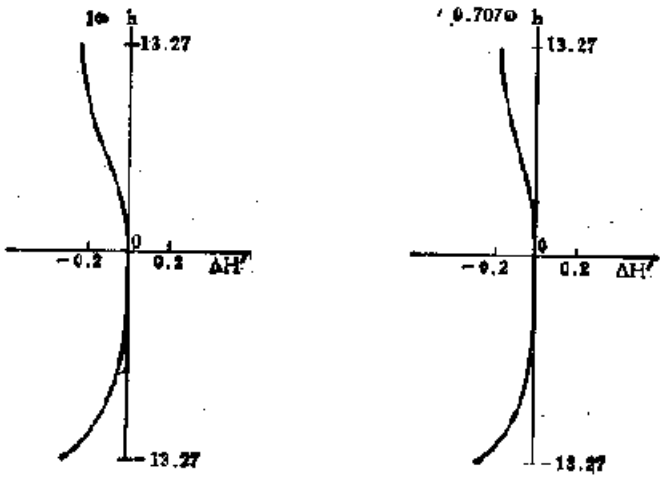
5.30* = 2.65 + 2.65

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | −0.02043 | −0.01667 | −0.30047 | −0.01837 | 0.00594 | 54.2 | 0.08% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t'-x_s'$ | $K\bar{r}_1$ | $K_{T0.7}$ |
| 100 | 0.035 | 0.044 | −0.718 | −0.634 | −0.084 | −0.2769 | −0.1379 |
| 70 | −0.352 | 0.014 | −0.516 | −0.476 | −0.040 | −0.2320 | −0.1018 |

注：1. 物点＝278.16，象点＝278.16；

2. 以上象差值是按 1 − − ∞计算的。

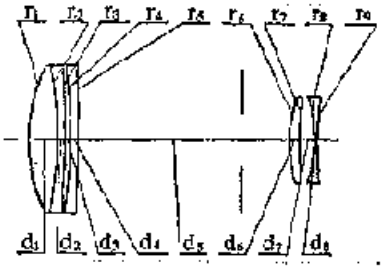


编号：05-04-085

# 大倍率远摄照相镜头

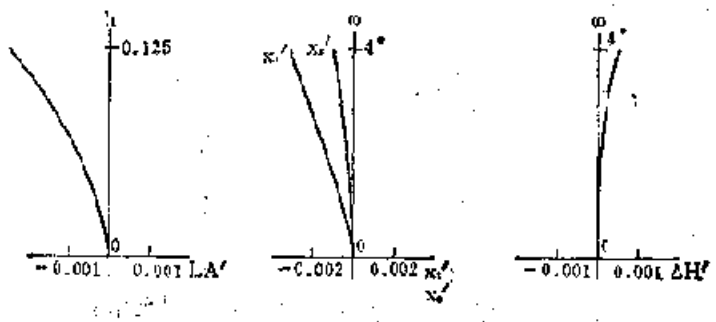
E. F. L＝0.9993　　B. F. L＝0.2031　　FNo. ＝4　　F. A. ＝±4°**

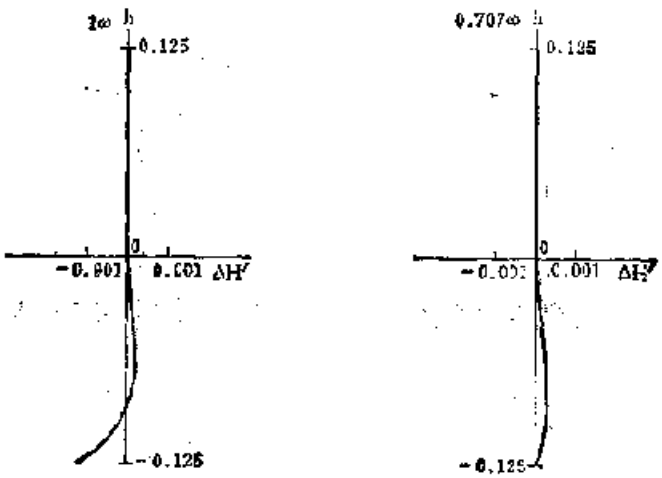


| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.42156 | 0.06676 | 1.64250 | 58.09 | 6 | 0.34202 | 0.02234 | 1.75787 | 31.56 |
| 2 | − 0.88214 | 0.01645 | 1.72830 | 28.66 | 7 | 1.17496 | 0.03869 | | |
| 3 | −18.00073 | 0.01183 | | | 8 | − 0.31069 | 0.00529 | 1.65016 | 39.31 |
| 4 | − 1.07288 | 0.01845 | 1.65446 | 33.79 | 9 | 0.69782 | | | |
| 5 | − 5.30649 | 0.52203* | | | | | | | |

$0.52203^* = 0.40290 + 0.11913$

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | − 0.000112 | 0.000083 | − 0.000061 | 0.000018 | 0.000139 | 0.07 | 0.75% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t - x_s$ | $K_{T1}$ | $K_{T6.7}$ |
| 100 | − 0.00254 | 0.00053 | − 0.00327 | − 0.00098 | − 0.00229 | − 0.00061 | − 0.00092 |
| 70 | − 0.00165 | 0.00019 | − 0.00215 | − 0.00059 | − 0.00156 | − 0.00004 | 0.00013 |

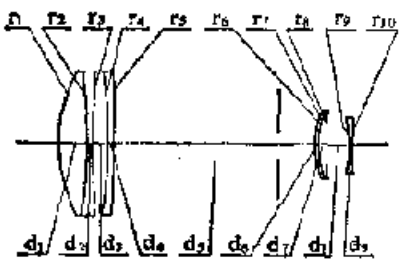


编号：05-04-086

# 大倍率远摄照相镜头

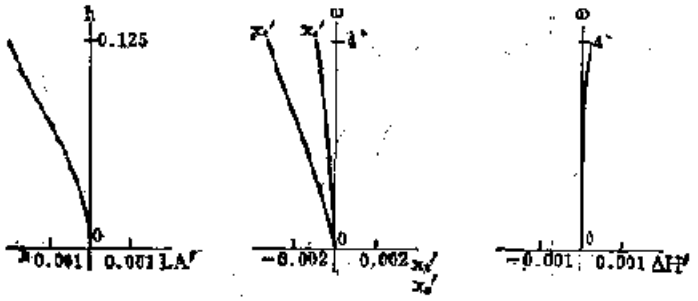
E.F.L＝1.0　　B.F.L＝0.2048　　FNo.＝4　　F.A.＝±4°**

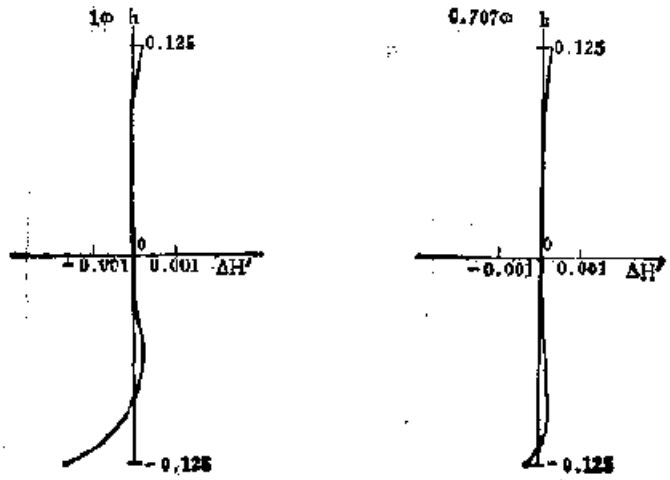



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.38711 | 0.06631 | 1.62041 | 60.29 | 6 | 0.23592 | 0.00631 | 1.85820 | 23.40 |
| 2 | − 1.12833 | 0.01263 | 1.72151 | 29.28 | 7 | 0.23502 | 0.01578 | 1.72372 | 38.09 |
| 3 | 14.40868 | 0.03789 | | | 8 | 0.46853 | 0.05962 | | |
| 4 | − 1.33502 | 0.01579 | 1.65446 | 33.79 | 9 | 0.27275 | 0.00579 | 1.65016 | 39.31 |
| 5 | −31.54790 | 0.49388* | | | 10 | 1.11156 | | | |

0.49388* = 0.40000 + 0.09388

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(± ω) |
|---|---|---|---|---|---|---|---|
| | − 0.0000936 | 0.0000954 | − 0.0000648 | 0.0000207 | 0.0000639 | 0.07 | 0.3% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | − 0.00201 | 0.00021 | − 0.00368 | − 0.00097 | − 0.00251 | − 0.00074 | − 0.00092 |
| 70 | − 0.00128 | 0.00008 | − 0.00228 | − 0.00060 | − 0.00168 | − 0.00004 | 0.000115 |

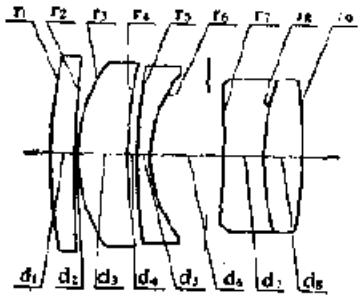


编号：05-04-087

# 四组元摄影物镜

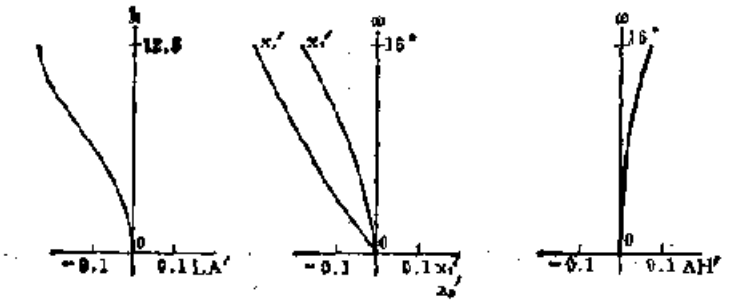
E.F.L＝100.65　　B.F.L＝67.07　　FNo.＝4　　F.A.＝±16°**

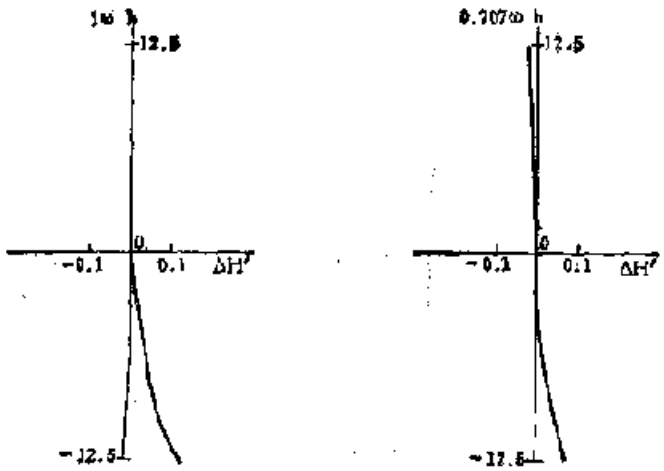


| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 86.3 | 4.4 | 1.745 | 46.4 | 6 | 23.5 | 13.2* | | |
| 2 | 258.0 | 0.2 | | | 7 | −214.0 | 7.5 | 1.513 | 60.5 |
| 3 | 29.4 | 9.3 | 1.724 | 51.0 | 8 | 47.8 | 6.9 | 1.697 | 56.2 |
| 4 | 71.5 | 2.0 | | | 9 | −81.5 | | | |
| 5 | 145.0 | 2.4 | 1.720 | 29.3 | | | | | |

13.2* = 10.0 + 3.2

| | $\Sigma S_1$ | $\Sigma S_3$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 m) |
|---|---|---|---|---|---|---|---|
| | − 0.01316 | 0.00178 | 0.00437 | − 0.02219 | 0.02817 | 28.9 | 0.23% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | − 0.244 | 0.067 | − 0.188 | − 0.307 | 0.119 | 0.0648 | 0.0234 |
| 70 | − 0.172 | 0.033 | − 0.114 | − 0.229 | 0.115 | 0.0279 | 0.0129 |

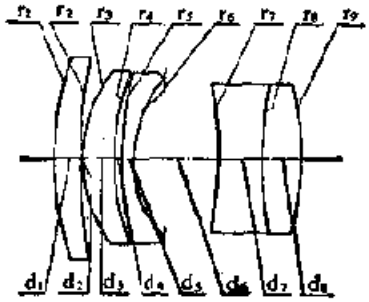


编号：05-04-088

# 四组元摄影物镜

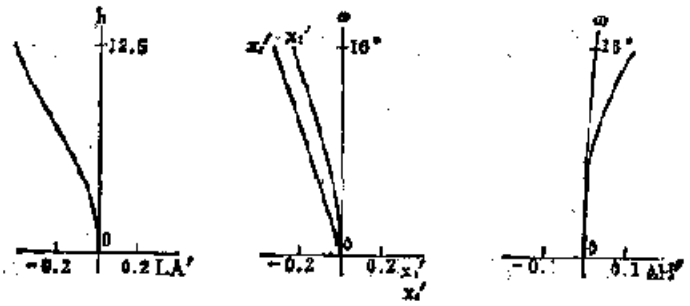
E.F.L＝99.5　　B.F.L＝69.1　　FNo.＝4**　　F.A.＝±16°**




| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 57.5 | 4.9 | 1.745 | 46.4 | 6 | 21.5 | 15.2* | | |
| 2 | 200.0 | 0.2 | | | 7 | −67.8 | 8.2 | 1.528 | 51.6 |
| 3 | 26.6 | 5.7 | 1.734 | 51.0 | 8 | 63.5 | 7.2 | 1.697 | 56.2 |
| 4 | 44.7 | 1.1 | | | 9 | −56.0 | | | |
| 5 | 87.5 | 2.5 | 1.720 | 29.3 | | | | | |

15.2*＝5.2＋10.0

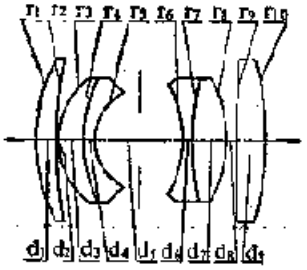
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(2ω) |
|---|---|---|---|---|---|---|---|
| | −0.02013 | −0.00729 | 0.00324 | 0.02138 | 0.02458 | 28.6 | 0.3% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{10.7}$ |
| 100 | −0.432 | 0.087 | −0.251 | −0.343 | 0.092 | 0.0682 | −0.0042 |
| 70 | −0.273 | 0.034 | −0.155 | −0.237 | 0.082 | 0.0379 | −0.0071 |



编号：05-04-089

# 四组元高斯型摄影物镜

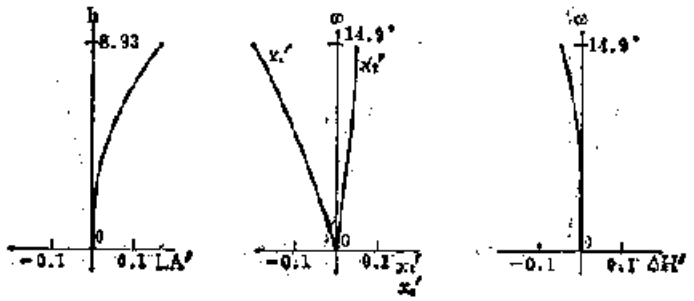
E.F.L＝101.9　　B.F.L＝52.9　　FNo.＝5.7　　F.A.＝±14.9°**

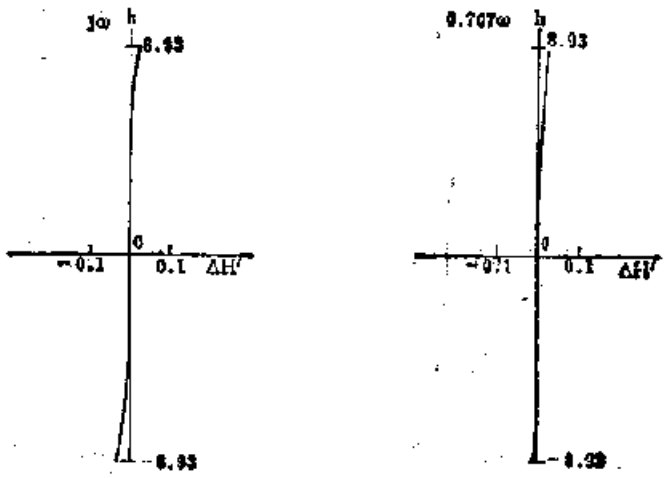



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 62.5 | 7.9 | 1.744 | 45.6 | 6 | −41.5 | 3.5 | 1.672 | 32.2 |
| 2 | 164.0 | 0.4 | | | 7 | 99.5 | 12.0 | 1.744 | 43.9 |
| 3 | 28.7 | 9.4 | 1.697 | 56.2 | 8 | −47.6 | 4.0 | | |
| 4 | 51.2 | 3.5 | 1.689 | 30.9 | 9 | 807.0 | 11.0 | 1.734 | 51.0 |
| 5 | 19.3 | 32.4* | | | 10 | −103.0 | | | |

32.4* = 16.2 + 16.2

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | III | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.00199 | 0.00094 | 0.00304 | − 0.00793 | − 0.00712 | 27.1 | −0.18% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | 0.169 | − 0.050 | 0.043 | − 0.208 | 0.251 | − 0.00481 | − 0.00429 |
| 70 | 0.074 | − 0.016 | 0.041 | − 0.132 | 0.173 | 0.00848 | 0.00258 |

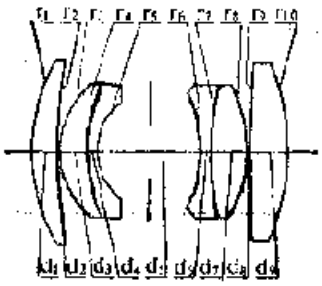


编号：05-04-090

# 四组元高斯型摄影物镜

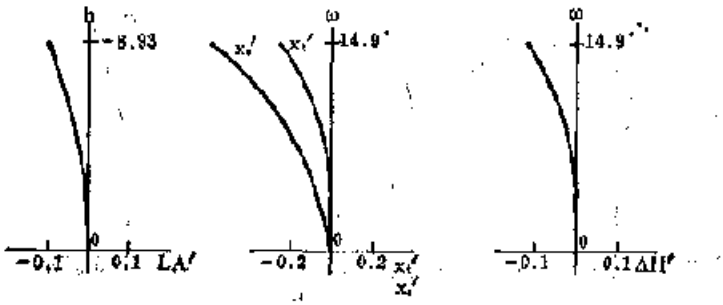
E.F.L=99.3　　B.F.L=52.2　　FNo.=5.56　　F.A.=±14.9°**

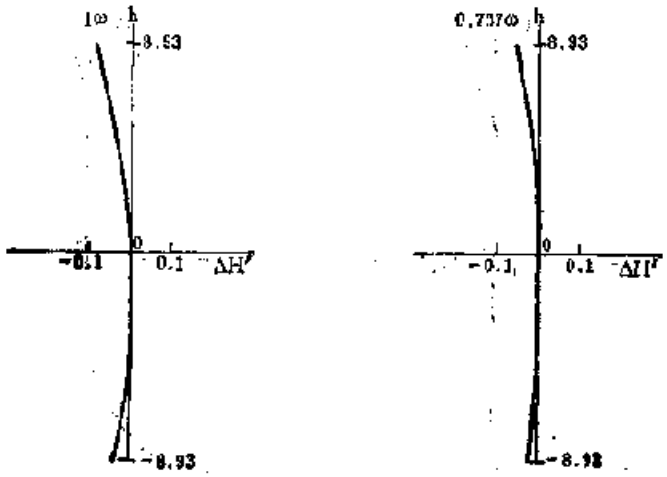


| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 69.3 | 8.80 | 1.744 | 45.8 | 6 | −46.2 | 3.90 | 1.672 | 32.3 |
| 2 | 182.0 | 0.47 | | | 7 | 110.0 | 13.60 | 1.734 | 51.0 |
| 3 | 81.8 | 10.40 | 1.607 | 56.2 | 8 | −52.3 | 0.47 | | |
| 4 | 36.8 | 3.90 | 1.689 | 30.9 | 9 | 897.0 | 13.50 | 1.734 | 51.0 |
| 5 | 21.4 | 37.60* | | | 10 | 84.0 | | | |

37.60* = 18.80 + 18.80

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | OP(ω) |
|---|---|---|---|---|---|---|---|
| | −0.00188 | −0.00200 | 0.00458 | −0.01432 | −0.01376 | 26.4 | −0.46% |
| h 或 ω% | LA′ | ΔH′ | $x_t$ | $x_s$ | $x_t'-x_s'$ | $K_{T1}$ | $K_{T0.7}'$ |
| 100 | −0.0987 | −0.121 | −0.273 | −0.590 | 0.317 | −0.05706 | −0.02950 |
| 70 | −0.0536 | −0.040 | −0.083 | −0.305 | 0.222 | −0.03082 | −0.01632 |

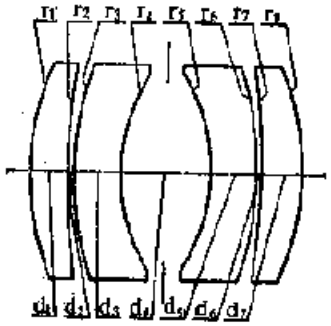


编号：C5-04-091

# 四片型对称重显物镜

E. F. L＝1.0063　　B. F. L＝0.8663　　FNo. ＝4.5　　F. A. ＝±30°

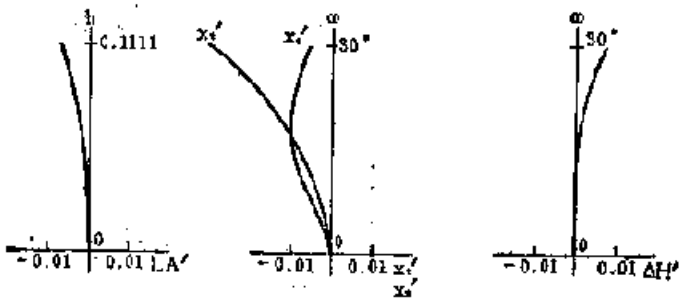


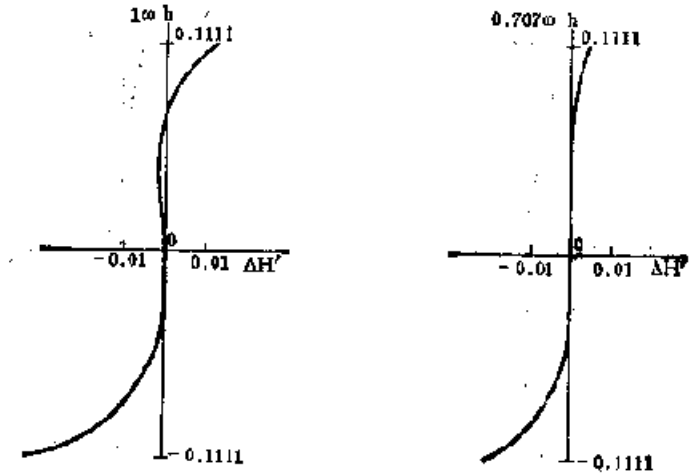

| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2635 | 0.042 | 1.588 | 61.2 | 5 | −0.1870 | 0.049 | 1.617 | 36.6 |
| 2 | 1.0270 | 0.005 | | | 6 | −0.3347 | 0.005 | | |
| 3 | 0.3347 | 0.049 | 1.617 | 36.6 | 7 | −1.0270 | 0.042 | 1.588 | 61.2 |
| 4 | 0.1870 | 0.090* | | | 8 | −0.2696 | | | |

0.090* = 0.045 + 0.045

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.000175 | −0.000272 | 0.000030 | −0.000692 | 0.000816 | 0.58 | 1.2% |
| h或ω% | LA′ | ΔH′ | $x_1$ | $x_3$ | $x_2'-x_3'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | −0.00080 | 0.00083 | −0.0324 | −0.0065 | −0.0259 | −0.01045 | −0.00294 |
| 70 | −0.00346 | 0.00183 | −0.0274 | −0.0102 | −0.0042 | −0.00864 | −0.00248 |

注：以上数据是按 l = −∞计算的。

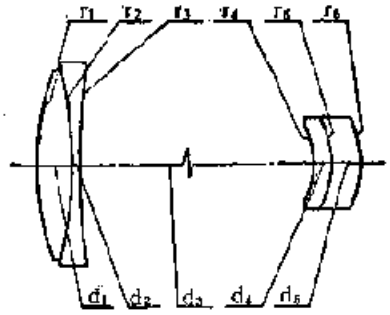


编号：05-04-092

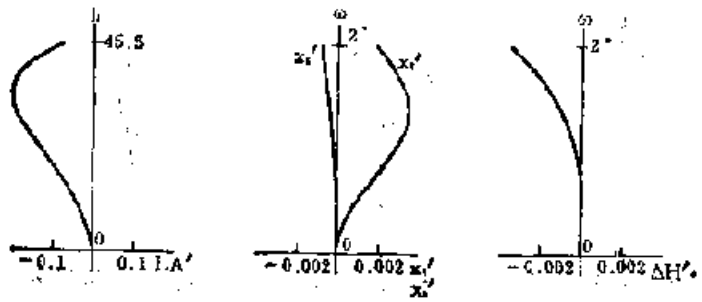
# 由两组相对复消色差透镜组成的远摄光学系统

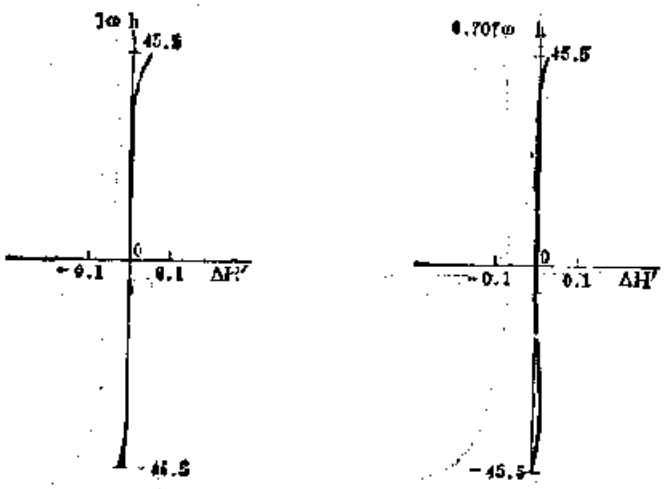
E. F. L＝610.2　　B. F. L＝126.16　　FNo. ＝5.6　　F. A. ＝±2°**　　$L'_{P1}$＝0




| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 177.010 | 20.5 | 1.620 | 60.3 | 4 | −51.523 | 10.6 | 1.611 | 57.2 |
| 2 | −232.900 | 5.0 | 1.720 | 50.2 | 5 | −56.494 | 17.9 | 1.649 | 33.8 |
| 3 | 1180.300 | 281.1 | | | 6 | −65.464 | | | |

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | −0.01070 | −0.00015 | 0.00010 | −0.00013 | −0.00034 | 17.8 | −0.02% |
| h或ω% | LA′ | ΔH′ | $x'_t$ | $x_s$ | $x'_t - x_s$ | $K_{F1}$ | $K_{F0.7}$ |
| 100 | −0.0751 | −0.0035 | 0.0016 | −0.0008 | 0.0024 | 0.01953 | 0.00566 |
| 70 | −0.1985 | 0.0011 | 0.0035 | −0.0005 | 0.0040 | 0.01054 | 0.00259 |

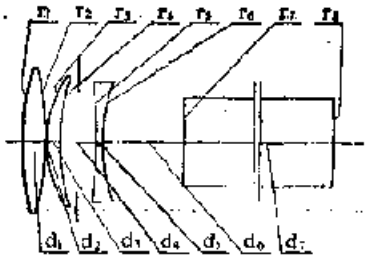


编号：05-04-093

# 三 片 型 望 远 物 镜

E. F. L＝98.999　　B. F. L＝12.606　　FNo. ＝3　　F. A. ＝±3°**

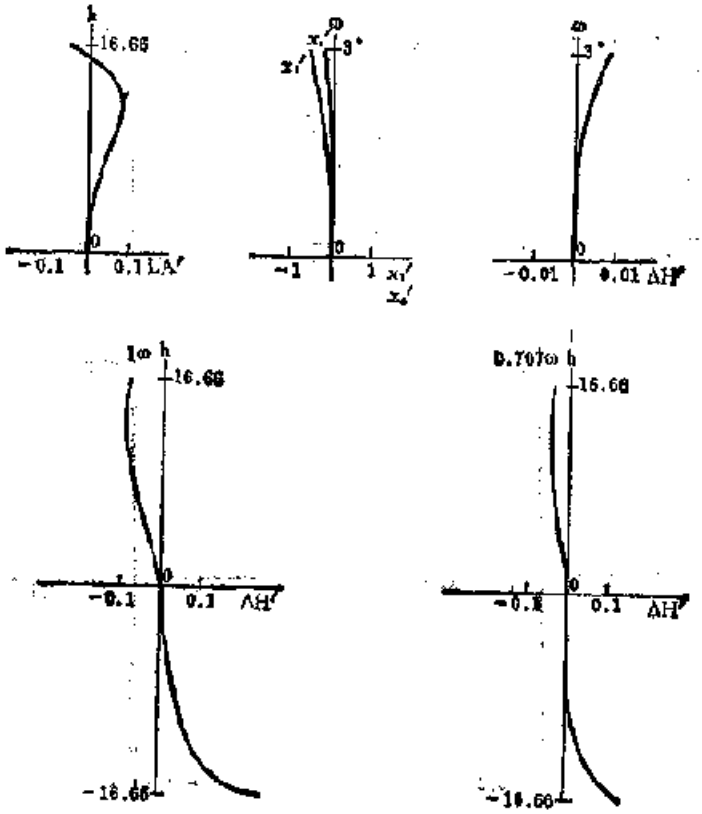



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 58.333 | 5.333 | 1.48631 | 81.87 | 5 | − 173.330 | 1.867 | 1.67270 | 32.23 |
| 2 | − 30.000 | 0.667 | | | 6 | 38.148 | 20.000 | | |
| 3 | 28.000 | 3.667 | 1.51730 | 69.62 | 7 | ∞ | 53.000 | 1.62000 | 36.34 |
| 4 | 58.333 | 8.533* | | | 8 | ∞ | | | |

8.533* = 4.000 + 4.533

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | $H\Gamma$ | $Q\Gamma(1\omega)$ |
|---|---|---|---|---|---|---|---|
| | 0.01049 | − 0.00952 | − 0.01050 | − 0.00237 | 0.00255 | 5.2 | 0.15% |

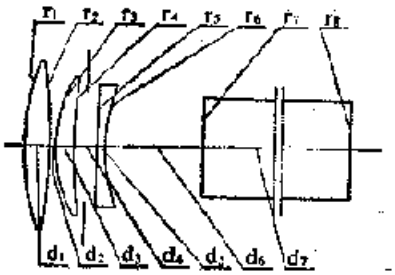
| h或ω% | LA′ | ΔH′ | $x_1'$ | $x_4'$ | $x_1'-x_4'$ | $K_{T1}'$ | $K_{T6,7}$ |
|---|---|---|---|---|---|---|---|
| 100 | − 0.0493 | 0.0077 | − 0.610 | − 0.232 | − 0.378 | 0.08211 | − 0.03744 |
| 70 | 0.0752 | 0.0027 | − 0.309 | − 0.116 | − 0.189 | 0.05493 | − 0.00636 |



编号：05-04-094

# 三 片 型 望 远 物 镜

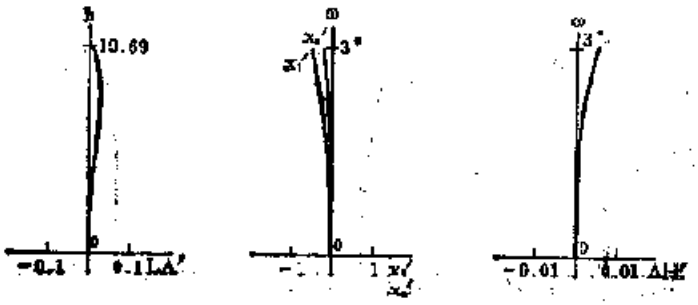
E. F. L＝99.999　　B. F. L－15.159　　FNo. ＝2.54　　F. A. ＝±8°**

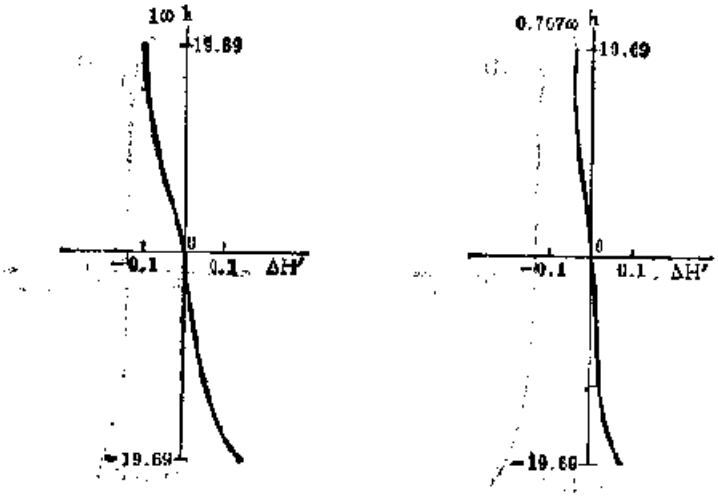



| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 63.715 | 5.000 | 1.5582 | 67.75 | 5 | ∞ | 1.966 | 1.7283 | 28.34 |
| 2 | －157.320 | 1.966 | | | 6 | 40.693 | 23.598 | | |
| 3 | 36.184 | 8.933 | 1.5687 | 63.12 | 7 | ∞ | 53.000 | 1.6200 | 36.34 |
| 4 | 117.990 | 5.000* | | | 8 | ∞ | | | |

5.000* = 3.000 + 2.000

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | ΔP(1ω) |
|---|---|---|---|---|---|---|---|
| | 0.00541 | －0.00654 | －0.01165 | －0.00470 | 0.00210 | 5.2 | 0.1% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T_1}'$ | $K_{T_{0.7}}'$ |
| 100 | 0.0043 | 0.0054 | －0.511 | －0.211 | －0.300 | 0.02543 | －0.00802 |
| 70 | 0.0309 | 0.0019 | －0.256 | －0.106 | －0.150 | 0.01648 | －0.00627 |

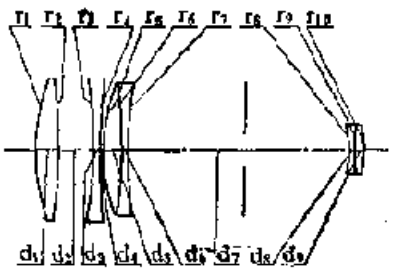


编号：05-04-095

# 小倍率望远镜式远摄透镜系统

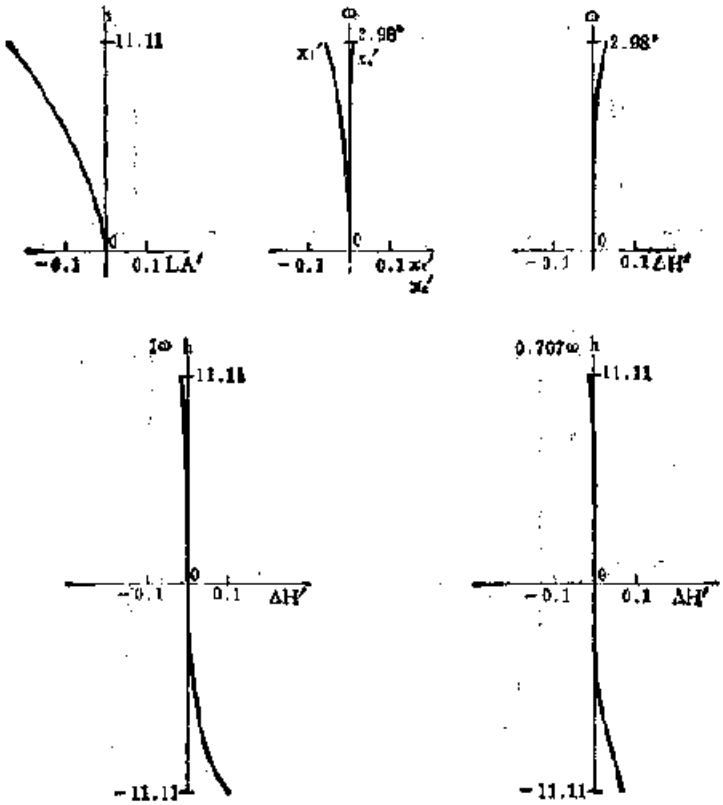
E.F.L＝97.79　　B.F.L＝23.95　　FNo.＝4.4　　F.A.＝±2.98°




| 序号 | r | d | n | ν | 序号 | r | d | n | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 32.2150 | 3.50 | 1.43749 | 70.2 | 6 | − 54.0170 | 1.00 | 1.61340 | 43.8 |
| 2 | − 79.5966 | 5.50 | | | 7 | 67.3400 | 33.75* | | |
| 3 | − 57.7059 | 1.00 | 1.80610 | 40.8 | 8 | − 12.9220 | 0.75 | 1.71300 | 54.0 |
| 4 | 153.2500 | 0.20 | | | 9 | 42.8340 | 1.25 | 1.74950 | 35.2 |
| 5 | 28.4860 | 3.00 | 1.61800 | 63.4 | 10 | − 23.7076 | | | |

33.75* = 18.00 + 15.75

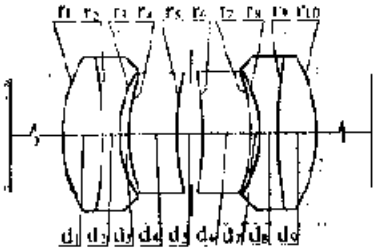
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | H | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | − 0.00866 | 0.00141 | − 0.00071 | 0.00080 | 0.00667 | 5.00 | 0.5% |
| h 或 ω % | LA′ | ΔH′ | $x_1'$ | $x_4$ | $x_1 - x_4$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | − 0.2422 | 0.0253 | − 0.0600 | 0.0015 | − 0.0615 | 0.04722 | 0.01545 |
| 70 | − 0.1442 | 0.0038 | − 0.0279 | 0.0012 | − 0.0291 | 0.02830 | 0.00959 |



编号：05-04-096

# 对 称 投 影 物 镜

E. F. L＝312　　B. F. L＝252.9　　FNo. ＝16.06　　F. A. ＝±10°**



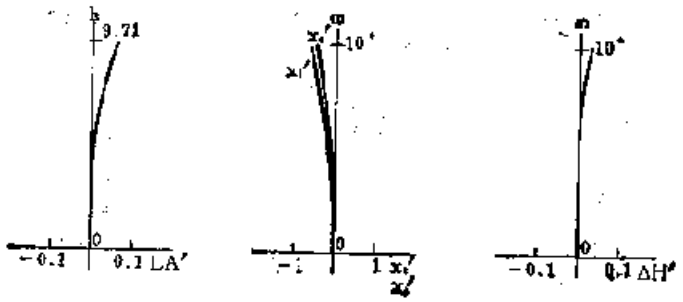
| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 74.473 | 18.8 | 1.611 | 57.2 | 6 | − 136.770 | 23.6 | 1.566 | 53.8 |
| 2 | − 220.800 | 9.1 | 1.559 | 45.5 | 7 | − 87.902 | 4.3 | | |
| 3 | 55.463 | 4.3 | | | 8 | − 55.463 | 9.1 | 1.559 | 45.5 |
| 4 | 87.902 | 23.6 | 1.566 | 53.8 | 9 | 220.800 | 18.8 | 1.611 | 57.2 |
| 5 | 136.770 | 12.0* | | | 10 | − 74.473 | | | |

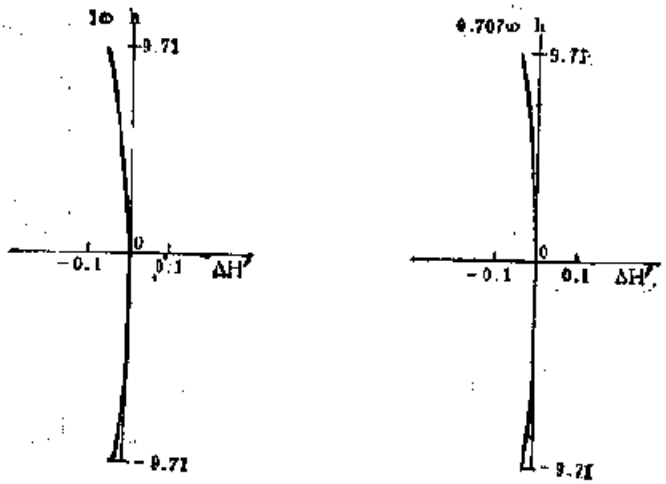
12.0* = 6.0 + 6.0

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | 0.000059 | − 0.000719 | − 0.000680 | − 0.001089 | 0.001254 | 55.2 | 0.04% |

| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}'$ |
|---|---|---|---|---|---|---|---|
| 100 | 0.055 | 0.022 | − 0.028 | − 0.526 | − 0.102 | − 0.0353 | − 0.0177 |
| 70 | 0.021 | 0.007 | − 0.332 | − 0.285 | − 0.047 | − 0.0243 | − 0.0124 |

注：1. M − 0.5* ～ 1* ～ 1.5*，
物点 = 873.6　562.7　459.1，
象点 = 407.2　562.7　718.1，
2. 以上象差值是按 l = − ∞计算的。

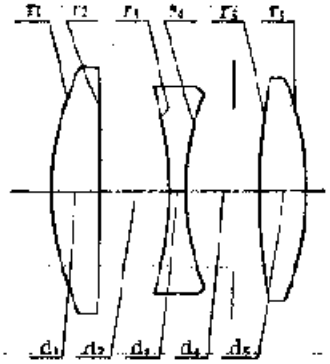


编号：05-04-097

# 三 片 型 摄 影 物 镜

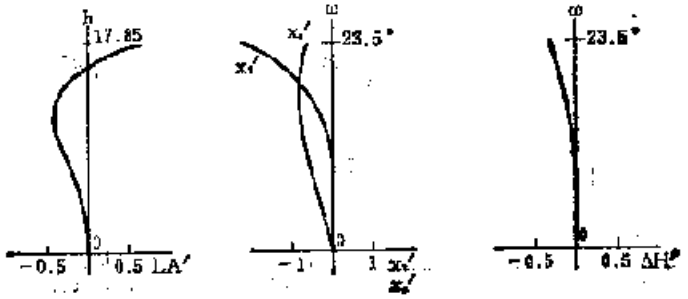
E. F. L＝100.01　　B. F. L＝82.97　　FNo.＝2.8　　F. A.＝±23.5°

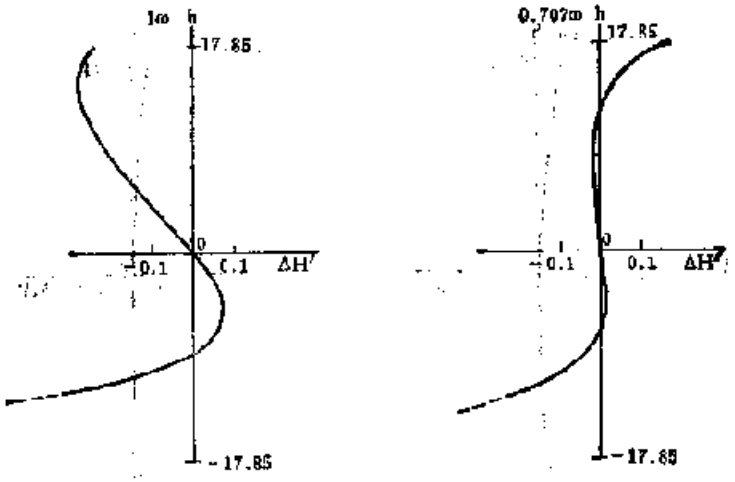


| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 42.81 | 7.476 | 1.65844 | 50.84 | 4 | 41.27 | 11.265° | | |
| 2 | − 7013.04 | 10.241 | | | 5 | 107.23 | 6.799 | 1.69100 | 54.80 |
| 3 | − 60.91 | 2.969 | 1.67270 | 32.23 | 6 | − 47.56 | | | |

11.265° = 7.000 + 4.265

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | − 0.1038 | 0.0516 | 0.0417 | − 0.2034 | − 0.0737 | 43.5 | − 0.5% |
| h 或 ω % | LA′ | ΔH′ | $x_1$ | $x_6'$ | $x_1' - x_6'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | − 0.729 | − 0.281 | − 2.175 | − 6.567 | − 1.608 | −1.3352 | − 0.3487 |
| 70 | − 0.386 | − 0.108 | − 0.307 | − 0.838 | 0.631 | − 0.8771 | − 0.1197 |

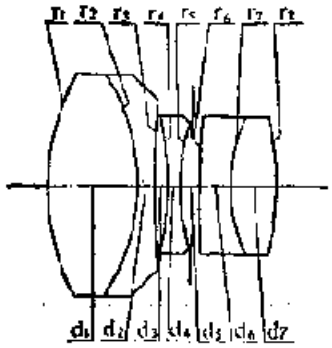


编号：05-04-098

# 二级光谱较小三组元透镜系统

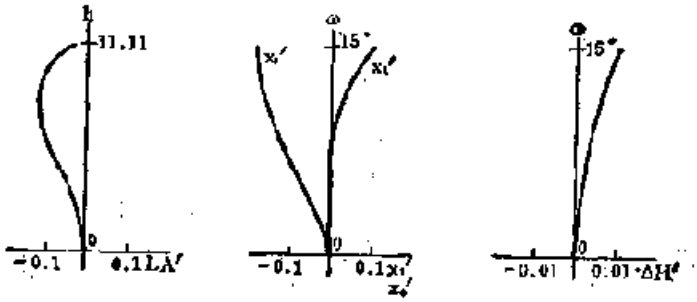
E.F.L＝100　　B.F.L＝82.47　　FNo.＝4.5　　F.A.＝±15°

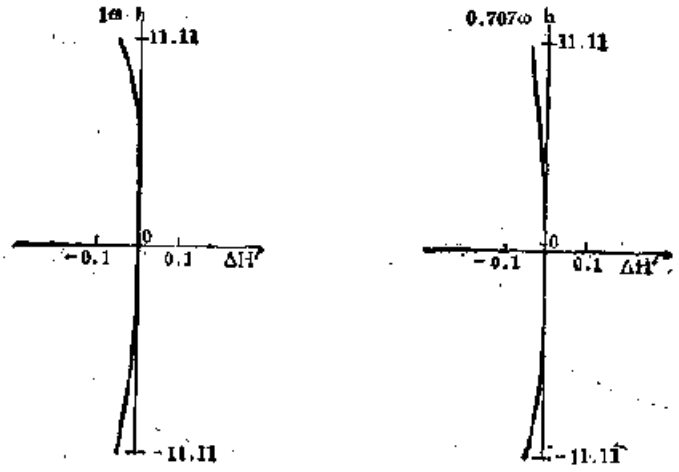


| 序号 | r | d | $n_D$ | ν | 序号 | r | d | $n_D$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35.170 | 13.784 | 1.62005 | 63.5 | 5 | 33.679 | 3.035* | | |
| 2 | −32.836 | 2.667 | 1.51700 | 64.5 | 6 | 314.750 | 4.840 | 1.65317 | 39.7 |
| 3 | 220.470 | 2.056 | | | 7 | 26.483 | 6.870 | 1.74500 | 46.4 |
| 4 | −44.142 | 2.074 | 1.65317 | 39.7 | 8 | −45.368 | | | |

3.035* = 1.500 + 1.535

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ω) |
|---|---|---|---|---|---|---|---|
| | − 0.01073 | − 0.00103 | 0.00452 | − 0.01487 | 0.00432 | 26.8 | 0.04% |
| h 或 ω % | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t'-x_s'$ | $K_{T1}'$ | $K_{T0.7}$ |
| 100 | − 0.0259 | 0.0113 | 0.1034 | − 0.1650 | 0.2884 | − 0.04937 | − 0.01833 |
| 70. | − 0.1232 | 0.0056 | 0.0183 | − 0.1564 | 0.1747 | − 0.04135 | − 0.01291 |

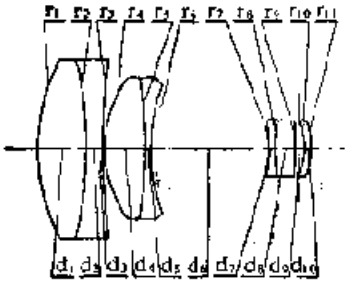


编号：05-04-099

# 远 摄 物 镜

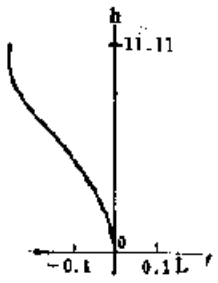
E. F. L＝100.2　　B. F. L＝23.1　　FNo. ＝4.51　　F. A. ＝±4°**

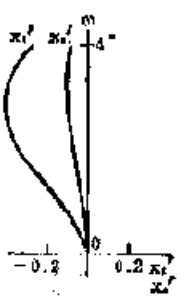


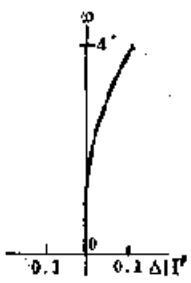
| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 36.32 | 8.84 | 1.56384 | 60.76 | 7 | −31.22 | 1.04 | 1.62041 | 60.29 |
| 2 | −78.03 | 3.12 | 1.57270 | 32.23 | 8 | 21.08 | 3.64 | 1.56732 | 42.82 |
| 3 | 105.89 | 0.26 | | | 9 | −77.46 | 2.00* | | |
| 4 | 22.56 | 7.54 | 1.57444 | 56.43 | 10 | −10.29 | 0.97 | 1.56873 | 63.12 |
| 5 | −78.03 | 1.04 | 1.58144 | 40.80 | 11 | −15.79 | | | |
| 6 | 34.70 | 21.81 | | | | | | | |

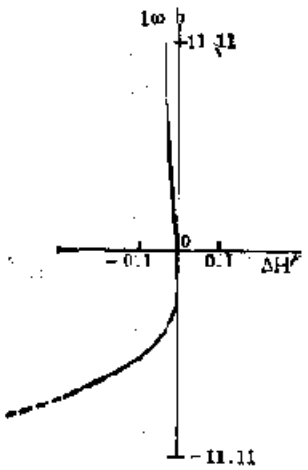
2.00* = 1.00 + 1.00

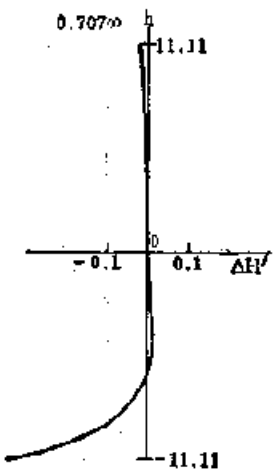
| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1 ∞) |
|---|---|---|---|---|---|---|---|
| | −0.0139 | 0.0013 | −0.0122 | 0.0056 | 0.0286 | 7.0 | 1.5% |
| h 或 ω % | $L\Lambda'$ | $\Delta H'$ | $x_1$ | $x_2$ | $x_1 - x_2$ | $K_{T1}$ | $K_{Tc.T}$ |
| 100 | −0.263 | 0.108 | −0.379 | −0.089 | −0.190 | −0.7058 | −0.1586 |
| 70 | −0.214 | 0.042 | 0.413 | −0.096 | −0.317 | −0.1783 | 0.0240 |



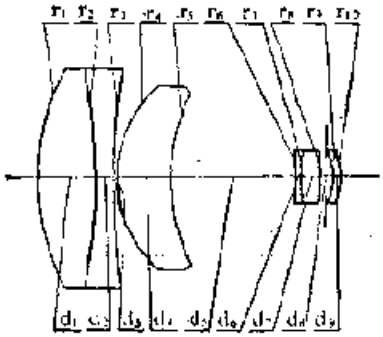



编号：05-04-100

# 远 摄 物 镜

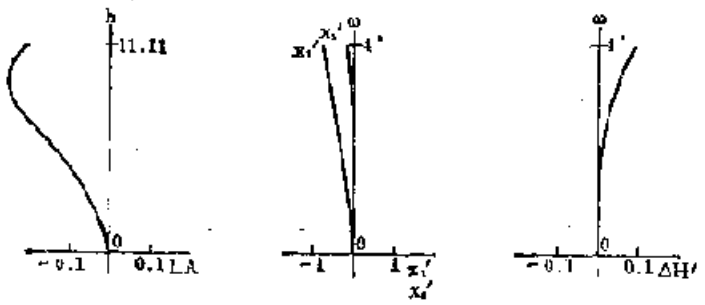
**E.F.L=96.56　　B.F.L=26.88　　FNo.=4.35　　F.A.=±4°****

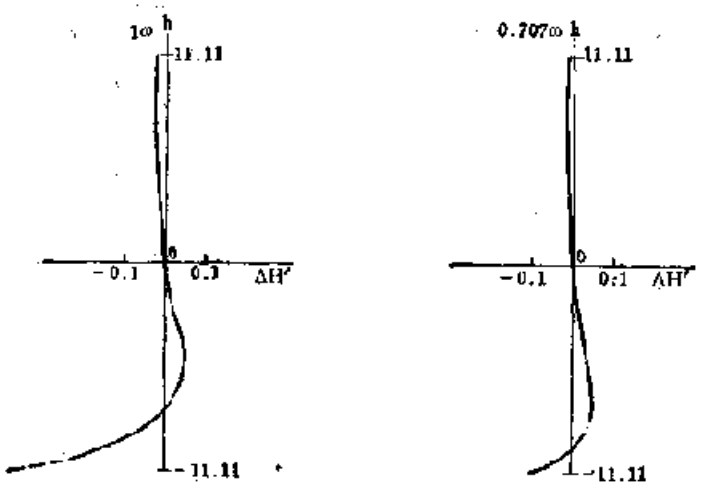


| 序号 | r | d | $n_d$ | $\nu_d$ | 序号 | r | d | $n_d$ | $\nu_d$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35.89 | 8.74 | 1.48749 | 70.04 | 6 | − 36.06 | 1.03 | 1.62041 | 60.29 |
| 2 | − 77.44 | 3.08 | 1.67270 | 32.23 | 7 | 30.85 | 2.70 | 1.56873 | 63.12 |
| 3 | 236.17 | 0.26 | | | 8 | − 77.14 | 1.96* | | |
| 4 | 19.09 | 8.48 | 1.48749 | 70.04 | 9 | − 9.60 | 0.96 | 1.56873 | 63.12 |
| 5 | 29.25 | 18.08 | | | 10 | − 14.18 | | | |

$1.96^{*}=0.98+0.98$

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | − 0.0175 | 0.0129 | − 0.0105 | 0.0038 | 0.0204 | 6.8 | 1.3% |
| h 或 ω % | LA′ | ΔH′ | $x_t$ | $x_s^*$ | $x_t'-x_s'$ | $K\nu_1$ | $K\nu_{0.7}$ |
| 100 | − 0.190 | 0.086 | − 0.777 | − 0.207 | − 0.570 | − 0.2280 | − 0.0979 |
| 70 | − 0.230 | 0.031 | − 0.464 | − 0.117 | − 0.347 | − 0.0544 | 0.0297 |

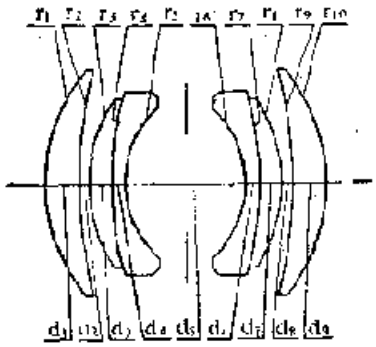


编号：05-04-101

# 高 斯 型 对 称 物 镜

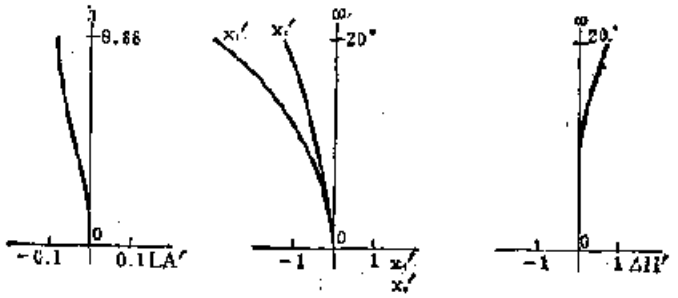
E. F. L = 112.48　　B. F. L = 75.98　　FNo. = 6.33　　F. A. = ±20°**

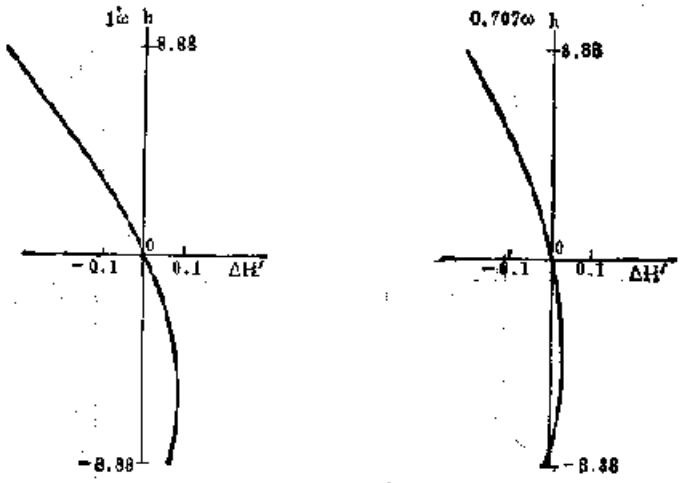


| 序号 | r | d | $n_D$ | $\nu_D$ | 序号 | r | d | $n_D$ | $\nu_D$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 35.645 | 6.75 | 1.620 | 60.3 | 6 | -20.800 | 2.75 | 1.536 | 39.7 |
| 2 | 89.536 | 2.20 | | | 7 | -66.681 | 4.56 | 1.620 | 60.3 |
| 3 | 31.333 | 4.56 | 1.620 | 60.3 | 8 | -31.333 | 2.20 | | |
| 4 | 66.681 | 2.75 | 1.596 | 39.7 | 9 | -89.536 | 6.75 | 1.620 | 60.3 |
| 5 | 20.800 | 24.56* | | | 10 | -35.645 | | | |

24.56* = 12.28 + 12.28

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | OP(1ω) |
|---|---|---|---|---|---|---|---|
| | - 0.00199 | - 0.00784 | - 0.00652 | - 0.01083 | 0.09047 | 41.1 | 1.7% |
| L 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | - 0.0817 | 0.698 | - 3.011 | - 1.324 | - 1.687 | - 0.1436 | - 0.0701 |
| 70 | - 0.0610 | 0.227 | - 1.440 | - 0.714 | - 0.726 | - 0.1110 | - 0.0535 |

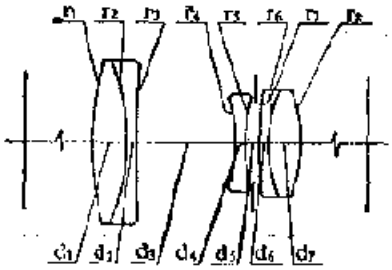


编号：05-04-102

# 光 学 物 镜

E. F. L＝1.0　B. F. L＝0.8089　FNo. ＝4.5　F. A. ＝±15°**



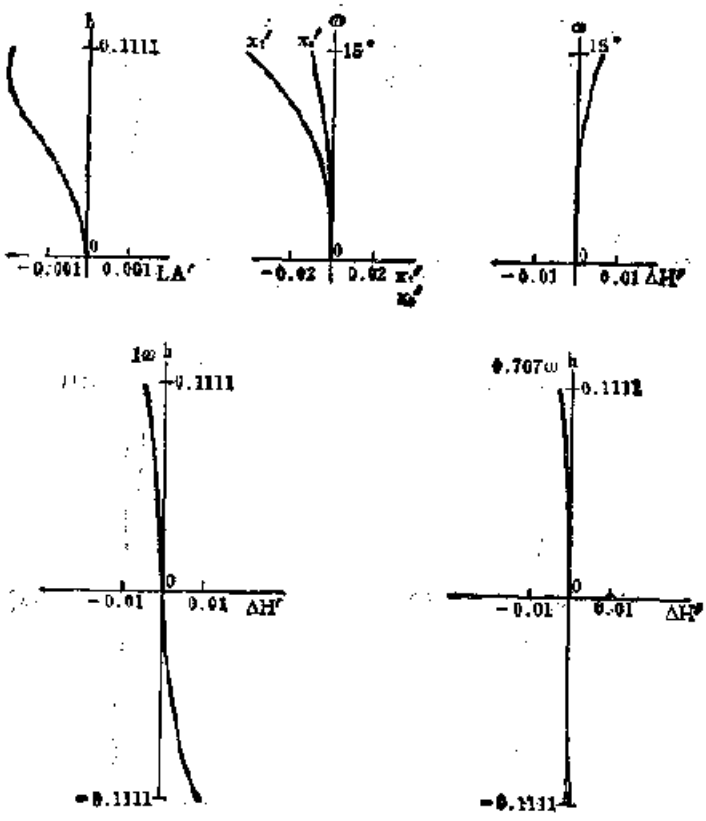
| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.53758 | 0.06182 | 1.62041 | 60.29 | 5 | 0.35283 | 0.02487* | | |
| 2 | − 0.41462 | 0.02021 | 1.56138 | 45.27 | 6 | 1.29743 | 0.01494 | 1.51742 | 52.16 |
| 3 | 6.11841 | 0.18125 | | | 7 | 0.24949 | 0.08349 | 1.62041 | 60.29 |
| 4 | − 0.25703 | 0.02074 | 1.53172 | 48.87 | 8 | − 0.26523 | | | |

0.02487* = 0.01200 + 0.01287

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HJ | QP(1 m) |
|---|---|---|---|---|---|---|---|
| | − 0.00011 | − 0.00006 | − 0.00013 | − 0.00012 | 0.00094 | 0.27 | 2.1% |
| h 或 ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}$ | $K_{T0.7}$ |
| 100 | − 0.00196 | 0.00568 | − 0.0442 | − 0.0112 | − 0.0330 | 0.00222 | 0.00052 |
| 70 | − 0.00168 | 0.00172 | − 0.0151 | − 0.0054 | − 0.0097 | − 0.00056 | − 0.00029 |

注：1. M＝1"～6"；

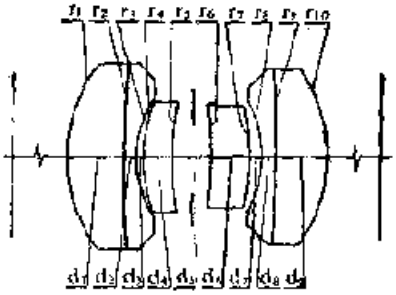
2. 以上象差值是按 l ＝ −∞计算的。



编号：05-04-103

# 摄 影 放 大 机 物 镜

E.F.L＝1.0　　B.F.L＝0.8264　　FNo.＝4.5　　F.A.＝±15°*



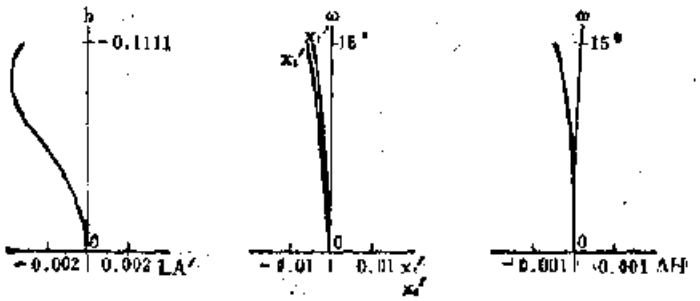
| 序号 | r | d | $n_d$ | $\nu$ | 序号 | r | d | $n_d$ | $\nu$ |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.28255 | 0.09522 | 1.69100 | 54.80 | 6 | − 0.54039 | 0.05415 | 1.52310 | 50.93 |
| 2 | 10.30451 | 0.02683 | 1.62374 | 47.04 | 7 | − 0.26442 | 0.01259 | | |
| 3 | 0.20152 | 0.02087 | | | 8 | − 0.19634 | 0.02368 | 1.64769 | 33.86 |
| 4 | 0.40812 | 0.06972 | 1.55361 | 51.36 | 9 | − 10.30451 | 0.10648 | 1.71700 | 47.90 |
| 5 | 0.81423 | 0.071870* | | | 10 | − 0.27214 | | | |

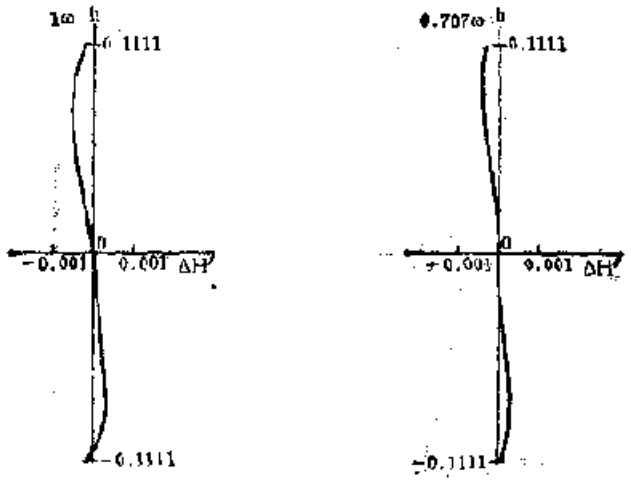
0.071870* = 0.035935 + 0.035935

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | QP(1ω) |
|---|---|---|---|---|---|---|---|
| | − 0.000235 | − 0.000017 | 0.000005 | − 0.000142 | − 0.000127 | 0.27 | − 0.22% |
| h 或ω% | LA′ | ΔH′ | $x'_t$ | $x'_s$ | $x'_t - x'_s$ | $K'_{F1}$ | $K'_{f0.7}$ |
| 100 | − 0.00327 | − 0.00059 | − 0.00445 | − 0.00473 | 0.00028 | − 0.000174 | − 0.000146 |
| 70 | − 0.00339 | − 0.00021 | − 0.00243 | − 0.00260 | 0.00017 | − 0.000122 | − 0.000071 |

注：1. M＝2′～12*；

2. 以上象差值是按 l＝−∞计算的。

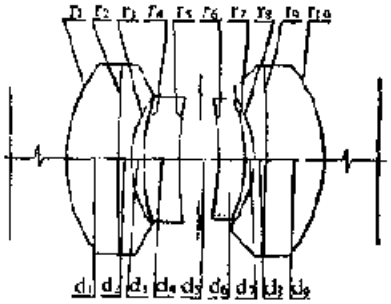


编号：05-04-104

# 摄 影 放 大 机 物 镜

E. F. L＝1.0　　B. F. L＝0.8292　　FNo. ＝4.5　　F. A. ＝ ±15°**



| 序号 | r | d | $n_d$ | ν | 序号 | r | d | $n_d$ | ν |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.28349 | 0.09554 | 1.69100 | 54.80 | 6 | − 0.55670 | 0.05018 | 1.53172 | 48.87 |
| 2 | 20.62918 | 0.02692 | 1.62374 | 47.04 | 7 | − 0.26975 | 0.01263 | | |
| 3 | 0.20219 | 0.02094 | | | 8 | − 0.10699 | 0.02376 | 1.64769 | 33.88 |
| 4 | 0.40920 | 0.06580 | 1.55115 | 49.61 | 9 | −20.62918 | 0.10584 | 1.71700 | 47.90 |
| 5 | 0.81470 | 0.07078* | | | 10 | − 0.27304 | | | |

0.07078* = 0.03539 + 0.03539

| | $\Sigma S_1$ | $\Sigma S_2$ | $\Sigma S_3$ | $\Sigma S_4$ | $\Sigma S_5$ | HI | OP(1 ω) |
|---|---|---|---|---|---|---|---|
| | − 0.000189 | − 0.000007 | 0.000004 | − 0.000139 | − 0.000128 | 0.26 | − 0.22% |
| h 或ω% | LA′ | ΔH′ | $x_t'$ | $x_s'$ | $x_t' - x_s'$ | $K_{T1}'$ | $K_{T0.7}'$ |
| 100 | − 0.00151 | − 0.00060 | − 0.00457 | − 0.00470 | 0.00033 | − 0.000142 | − 0.000077 |
| 70 | − 0.00259 | − 0.00021 | − 0.00248 | − 0.00258 | 0.00010 | − 0.000120 | − 0.000033 |

注：1. M：2′～12′；

2. 以上象差值是按 l = −∞计算的。